APPENDIX ‘B’

REMEDIATION PLAN

Manitoba
Sustainable Development

Environmental Stewardship Division
Environmental Approvals Branch
1007 Century Street, Winnipeg, Manitoba R3H 0W4
T 204-945-8321 F (204) 945-5229
www.manitoba.ca/sd

Cameron Ward
City of Winnipeg
103-1155 Pacific Avenue
Winnipeg, MB R3E 3P1

August 27, 2019

Dear Mr. Ward:

Re: Dublin Avenue Bridge over Omand's Creek, Winnipeg, Manitoba;
Designation under the Contaminated Sites Remediation Act

This letter is to advise that the above-noted property (the site) has been designated as an impacted site, under section 7.1(1) of The Contaminated Sites Remediation Act, C.C.S.M, c. C205 (the CSRA).

This site has been designated because:

1. A recent Environmental Site Assessment submitted to the department documents impacts to soil by polycyclic aromatic hydrocarbons and sediment in Omand's Creek by polycyclic aromatic hydrocarbons and metals.

Manitoba Sustainable Development also acknowledges receipt of a Remediation Plan (the Plan) for the site in the report entitled *"Remediation Plan for Dublin Avenue at Omand's Creek at the Dublin Avenue Bridge, Winnipeg, Manitoba"* prepared by Stantec Consulting Ltd. dated August 15, 2019.

Manitoba Sustainable Development approves the Plan submitted for the site.

This letter constitutes written authorization as specified under the CSRA subsection 17.1 (1) for City of Winnipeg to proceed with the remediation of the site as described in the Plan. Any change to the Plan must be approved by the undersigned prior to initiating the change. A Summary Report documenting the remediation should be submitted to this office for review at the completion of the Plan.

If you believe that you are not responsible for the remediation of the site or if one or more other persons should also be responsible for remediation of the site, you may make an Application for Determination of Responsibility under section 7.3(1) of the CSRA. The Application for Determination of Responsibility must:

a. be made in writing;

b. be filed with the Director no later than 90 days after the site was designated as an impacted site, or such longer time as the Director may authorize by written notice;

c. contain any information about the persons the owner believes should be responsible for the remediation of the site; and

d. comply with the information requirements outlined in the Department’s Information Bulletin “Requirements for Determination of Responsibility” (this Information Bulletin is available at our website: http://www.gov.mb.ca/conservation/envprograms/contams/guidelines.html).

If, in the Director's opinion, the site is no longer contaminated at a level that may pose a threat to human health or safety or to the environment, the Director shall revoke the designation by written order as per section 7.2 (1) of the CSRA.

It should be noted that the position of Manitoba Sustainable Development as stated in this letter is based on the information provided to this office by Stantec Consulting Ltd and relates only to the matters within the scope of the investigation and the Plan submitted by Stantec Consulting Ltd.

If you have any questions regarding this letter, please contact Warren Rospad, Contaminated Sites Program Specialist at 204-330-2685 or warren.rospad@gov.mb.ca. Please note that electronic submissions are preferred for all documents and correspondence.

Sincerely,

S. Kohler

Shannon Kohler
Director,
The Contaminated Sites Remediation Act

c. File: 75981
Scott Coughtrey (Stantec Consulting Ltd.)
Environmental Compliance and Enforcement

Stantec Consulting Ltd.
500–311 Portage Avenue
Winnipeg MB R3B 2B9
Tel. 204-489-5900

August 15, 2019
File: 113733340

Attention: Warren Rospad, Contaminated Sites Specialist
Manitoba Sustainable Development
1007 Century Street
Winnipeg, MB R3H 0W4

Dear Mr. Rospad,

Reference: Remediation Plan for Dublin Avenue at Omand's Creek and Omand's Creek at the Dublin Avenue Bridge in Winnipeg, Manitoba

At the request, and on behalf, of the City of Winnipeg, Stantec Consulting Ltd. (Stantec) has prepared the following Remediation Plan as required by Manitoba Sustainable Development (MSD) according to Section 14.1(1) of *The Contaminated Sites Remediation Act* (C.C.S.M., c. C205; 'the CSRA') for soil impacts beneath the Dublin Avenue roadway east and west of the Dublin Avenue Bridge at Omand's Creek and sediment within Omand's Creek at the Dublin Avenue Bridge in Winnipeg, Manitoba (hereinafter referred to as "the Site") shown in **Figure 1**, attached.

The purpose of this Remediation Plan is to provide MSD with an update of the current environmental status of the Site and advise on the proposed Site activities (including handling of impacted sediment and soil) in concert with the replacement of the Dublin Avenue Bridge over Omand's Creek, realignment of the creek channel and slope stabilization, as well as the associated Dublin Avenue street improvements in the vicinity of the Dublin Avenue Bridge. Enclosed for your review is the following report, which was prepared exclusively for the City of Winnipeg by Stantec and is being provided on a confidential basis:

- Environmental Site Assessment for the Replacement of the Dublin Avenue Bridge Over Omand's Creek and Associated Regional Street Improvements, Final Report, dated March 29, 2019.

BACKGROUND INFORMATION

The Site location is presented in **Figure 1** (attached). The Site is located in the St. James Industrial neighbourhood in the northwest quadrant of the City of Winnipeg. The existing bridge at the Site is constructed of a timber substructure and timber and concrete composite superstructure. The bridge is part of Dublin Avenue, which runs east-west, and crosses Omand's Creek, which runs north-south. Omand's Creek discharges into the Assiniboine River approximately 3.6 km south of the Site. Surrounding land use is commercial and industrial (see **Figure 2**, attached).

Stantec was retained by the City of Winnipeg to complete an Environmental Site Assessment (ESA) at the Site as part of the design of the Dublin Avenue Bridge replacement, which also includes slope stabilization north of the bridge, and the regional street improvements as this portion of the project is located to the north of the former Dominion Bridge site, which has known subsurface impacts. Based on the findings of the ESA, soil impacts including polycyclic aromatic hydrocarbon (PAH) parameters including naphthalene and phenanthrene were identified in two borehole locations completed within 30 m of creek bed of Omand's

Creek (see **Figure 2** and **Table 1**, attached). The soil impacts were ranged from 0.5 to 1.0 m below ground surface (m BGS). No soil exceedances were identified in the submitted soil samples from boreholes completed greater than 30 m of the creek bed (see **Figure 2** and **Table 2**, attached).

Based on the findings of the ESA, sediment impacts including metals and PAHs were identified in the sediment (surface to 0.3 m BGS) within the creek bed of Omand's Creek (see **Figure 2** and **Table 3**, attached). One marginal exceedance of phenanthrene was identified in the soil located at borehole BH19-15 located immediately north of the Dublin Avenue Bridge within the creek bed at a depth ranging from 0.8 to 1.0 m BGS (see **Figure 2** and **Table 4**, attached).

Additional details of the scope of work and findings are provided in the attached ESA report.

REMEDIAL OBJECTIVE

The objective of this remedial project is to excavate the metal and PAH impacted sediments from the Omand's Creek in the vicinity of the Dublin Avenue Bridge as part of the bridge replacement activities (**Figure 3**, attached). The proposed excavation within Omand's Creek will involve the entire creek bed from the east bank to the west bank and extend approximately 33 m north of the current bridge structure, beneath the current bridge structure and approximately 13 m south of the bridge structure.

In addition. the objective of this remedial project will also be to excavate the PAH impacted soils within the Dublin Avenue roadway extending 30 m to the east and 30 m to the west from the current bridge structure/banks of Omand's Creek as part of the regional street improvement activities (**Figure 3**, attached).

As a result of this proposed objectives, the following Remediation Plan has been prepared.

REGULATORY GUIDELINES

The same regulatory framework that provided guidance in the determination of impacts in the prior assessment is proposed for use during remedial activities. This framework for the soil analytical results will consist of the following:

- Canadian Council of Ministers of the Environment (CCME). Canadian Environmental Quality Guidelines (CEQG) for the Protection of Environmental and Human Health for industrial land use, including the CEQG for the Protection of Environmental and Human Health for Polycyclic Aromatic Hydrocarbons, online summary.
- CCME, Canada Wide Standards (CWS) for Petroleum Hydrocarbons (PHC), January 2008.
- Ontario Ministry of the Environment (MOE) document Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario. PIBS #7386e01. April 15, 2011.

Based on the stratigraphy encountered during the completion of the boreholes and the particle size analysis completed, the soils at the Site are fine-grained. Based on the Site and surrounding land use consisting primarily of commercial and industrial land use, industrial guidelines were considered appropriate for the Site. As such, industrial guidelines for fine-grained soils were applied in the evaluation of the soil analytical results. As water is supplied to the Site and surrounding area by the City of Winnipeg municipal water system, the protection of potable groundwater exposure pathway has been eliminated. The freshwater aquatic life pathway was considered applicable to soil present within 30 m of creek bank when selecting PAH guidelines as the roadway is located adjacent to a freshwater body (Omand's Creek). The freshwater aquatic life pathway was not considered applicable to the soil located beyond 30 m of the creek bank and therefore was not applied to soil analytical results greater than 30 m from the creek bed.

The same regulatory framework that provided guidance in the determination of sediment impacts in the prior assessment is proposed for use during remedial activities. This framework for the sediment analytical results will consist of the following:

- CCME. Canadian Environmental Quality Guidelines (CEQG) Sediment Quality Guidelines for the Protection of Aquatic Life, Interim Freshwater Sediment Quality Guidelines, online summary.
- CCME. Canadian Environmental Quality Guidelines (CEQG) Sediment Quality Guidelines for the Protection of Aquatic Life, Freshwater Probable Effect Levels, online summary.

For the completion of the remedial objectives for material within Omand's Creek, sediment guidelines will be applied from surface to a maximum depth of 0.3 m BGS and soil guidelines will be applied to material greater than 0.3 m BGS.

As the work proposed for Omand's Creek is within the creek channel below the high water mark, there are proposed alterations to the creek channel itself, and proposed changes to the construction of the channel, Stantec has also submitted a Request for Review to the Department of Fisheries and Oceans as part of this project. Changes proposed by the Department of Fisheries and Oceans based on the review will be provided to MSD in an update and incorporated into the remedial activities within Omand's Creek.

REMEDIATION PLAN METHODS

Stantec's role is to develop tender documents for the replacement of the Dublin Avenue Bridge over Omand's Creek and the associated regional street improvements including Dublin Avenue and then oversee the on-site activities on behalf of the City of Winnipeg. This Remediation Plan will be included in the tender documentation to guide the bidding and selected contractor. Based on the findings of the previous environmental investigations, the following are the proposed remedial plans for the Site to be completed during the bridge replacement and regional street improvement activities at the Site, which will be overseen by Stantec:

- With respect to the regional street improvements of Dublin Avenue east and west of the Dublin Avenue Bridge, soil within 30 m of the creek banks will be excavated to an approximate depth of

0.9 m BGS as part of the road works and hauled off-site for proper disposal. The area will then be backfilled with crushed granular and topped with concrete and/or asphalt.

  - Samples will be collected from the base of the final limits of the roadway excavation and submitted for laboratory analysis of PAHs to document the remaining PAH impacts (if present).

- With respect to the sediment impacts present within the creek bed of Omand's Creek, it is proposed that the sediment be excavated to approximately 0.3 m BGS for excavation and off-site disposal as part of the realignment of the creek channel, bridge replacement activities, and slope stabilization. In addition, as part of the bridge replacement activities soil and sediment on the east and west banks of the creek will be excavated for the bridge abutments to an approximate depth of 2.5 m BGS and material removed for off-site disposal. Following excavation, a geotextile membrane will be installed in the bottom of the channel/creek bed and a 0.3 m layer of riprap.

  - Samples will be collected from the base of the final limits of the creek bed excavation for laboratory analysis of metals and PAHs to document the remaining sediment impacts (if present).

- Impacted material removed from the Site will be transported to the Prairie Green Landfill located approximately 13 km from the Site in Stony Mountain, Manitoba following receipt approval by the facility. A contractor, to be selected by the City of Winnipeg, will complete excavation and hauling activities.

SCHEDULE OF ACTIVITIES

The remedial activities associated with the excavation and removal of impacted sediment from Omand's Creek is proposed to be completed between January and April 2020. The remedial activities associated with the roadway on either side of the Dublin Avenue Bridge are to be completed in the summer of 2020. Following the remedial works in the creek bed and the roadway including the removal, remediation of impacted sediment and soils as required, Stantec will prepare a brief Remediation Plan Closure report to MSD.

Should additional areas of soil impacts be identified during the remedial activities at the Site, an update of the findings and proposed activities will be provided to MSD for review and approval.

REMEDIATION PLAN APPROVAL

At this time, the City of Winnipeg is seeking 'approval in principle' of the Remediation Plan outlined above from MSD, with the understanding that further details will be shared as they are confirmed and a more specific timeline for the remedial activities in the creek bed and beneath the roadway is known and with the understanding that the remediation actions taken (whether on-site management, excavation, or risk assessment) will be reported in a Remediation Plan Closure report once Site activities are completed.

Reference: **Remediation Plan for Dublin Avenue at Omand's Creek and Omand's Creek at the Dublin Avenue Bridge in Winnipeg, Manitoba**

CLOSURE

This Remediation Plan is prepared for the sole benefit of Manitoba Sustainable Development and the City of Winnipeg. The plan may not be relied upon by any other person or entity without the express written consent of Stantec Consulting Ltd. and the City of Winnipeg. Limitations appended also extend to this letter.

Any use which a third party makes of this plan, or any reliance on decisions made based on it, is the responsibility of such third parties. Stantec Consulting Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this plan.

We trust that the enclosed information is sufficient and request your approval of this Remediation Plan after which the outlined activities will be completed following the proposed schedule. If you have any questions or concerns, please do not hesitate to contact us.

This report was prepared by Scott Coughtrey, B.Env.Sc., EPt, and reviewed by and Karen Mathers, M.Sc., P.Geo. FGC, PMP.

Regards,

Stantec Consulting Ltd.

Scott Coughtrey B.Env.Sc., EPt
Project Manager, Environmental Services
Phone: (204) 928-7612
Scott.Coughtrey@stantec.com

Karen Mathers M.Sc., P.Geo. FGC, PMP
Principal, Environmental Services
Phone: (204) 924-5735
Karen.Mathers@stantec.com

Attachment: Limitations
Figure 1 – Site Location Plan
Figure 2 – Sediment and Soil Exceedances
Figure 3 – Proposed Remedial Areas
Table 1 – Summary of Soil Analytical Results for Sample Locations within 30 m of Omand's Creek
Table 2 – Summary of Soil Analytical Results for Sample Locations within >30 m from Omand's Creek
Table 3 – Summary of Sediment Analytical Results
Table 4 – Summary of Soil Analytical Results for Sample Locations Within Omand's Creek > 0.3 m Below Ground Surface
Environmental Site Assessment for the Replacement of the Dublin Avenue Bridge Over Omand's Creek and Associated Regional Street Improvements, dated March 29, 2019

c. Cameron Ward, City of Winnipeg

cs v:\1114\active\113733340\02_correspondence\regulators\let_rem_plan_dublin_20190815.docx

LIMITATIONS

This Remediation Plan has been prepared for the sole benefit of Manitoba Sustainable Development and may not be used by any other person or entity without the express written consent of Stantec Consulting Ltd. and the City of Winnipeg.

This plan documents a review of work that was completed by others. No other representations, warranties or guarantees are made concerning the accuracy or completeness of the data or conclusions contained within this plan or the source documents provided to Stantec, including no assurance that this work has uncovered all potential liabilities associated with the identified property.

This plan provides an evaluation of selected environmental conditions associated with the identified portion of the property that was assessed at the time the work was conducted and is based on information since provided to Stantec. There are no assurances regarding the accuracy and completeness of this information. All information received in the preparation of this plan has been assumed by Stantec to be correct. Stantec assumes no responsibility for any deficiency or inaccuracy in information received from others.

The opinions in this plan can only be relied upon as they relate to the condition of the portion of the identified property that was assessed at the time the work was conducted by others. Activities at the property subsequent to the assessments may have significantly altered the property's condition. Stantec cannot comment on other areas of the property that were not assessed.

This plan has been prepared for the exclusive use of the client identified herein and any use by any third party is prohibited. Stantec assumes no responsibility for losses, damages, liabilities or claims, howsoever arising, from third party use of this plan.

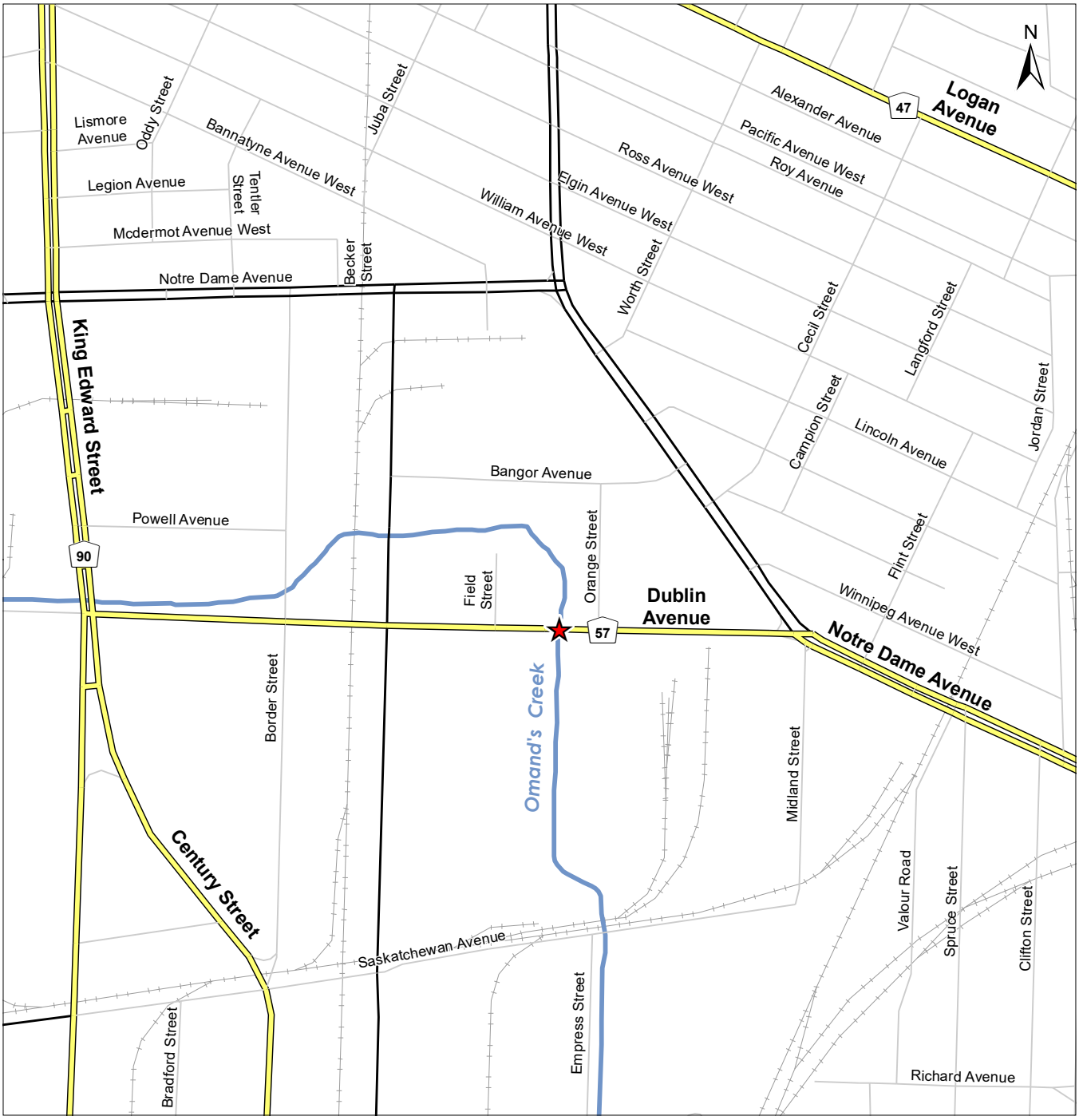
The locations of any utilities, buildings and structures, and property boundaries illustrated in or described within this report, if any, including pole lines, conduits, water mains, sewers and other surface or sub-surface utilities and structures are not guaranteed. Before starting work, the exact location of all such utilities and structures should be confirmed and Stantec assumes no liability for damage to them.

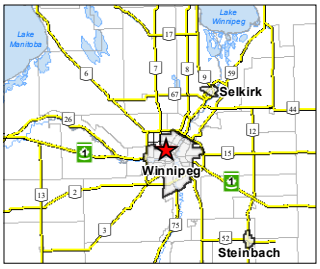
The conclusions are based on the site conditions encountered by others at the time the work was performed at the specific testing and/or sampling locations, and conditions may vary among sampling locations. Due to the nature of the investigation and the limited data available as well as the fact that the work was completed by others, for which Stantec cannot ascertain the completeness or accuracy, Stantec does not warrant against undiscovered environmental liabilities nor that the sampling results are indicative of the condition of the entire site. As the purpose of this plan is to identify site conditions which may pose an environmental risk; the identification of non-environmental risks to structures or people on the site is beyond the scope of this assessment.

Should additional information become available which differs significantly from our understanding of conditions presented in this plan, Stantec specifically disclaims any responsibility to update the plan.

DRAFT

G:_GIS Project Folder\113733340\ArcMaps\RemediationPlan_Figure1_SiteLocationPlan_20190628.mxd Revised: 2019-07-03 By: ACampagatto





Legend

- Project Site
- Major Road
- Minor Road
- Local Road
- Railway
- Watercourse

0 100 200 Metres
1:10,000 (at original document size of 8.5x11)

Stantec

Project Location
Dublin Ave at Omand's Creek;
Winnipeg, Manitoba

113733340

Prepared by AC on 2019-06-28
Technical Review by SC on 2019-06-28

Client/Project
Remediation Plan
Dublin Avenue at Omand's Creek and
Omand's Creek at the
Dublin Avenue Bridge, Winnipeg, Manitoba

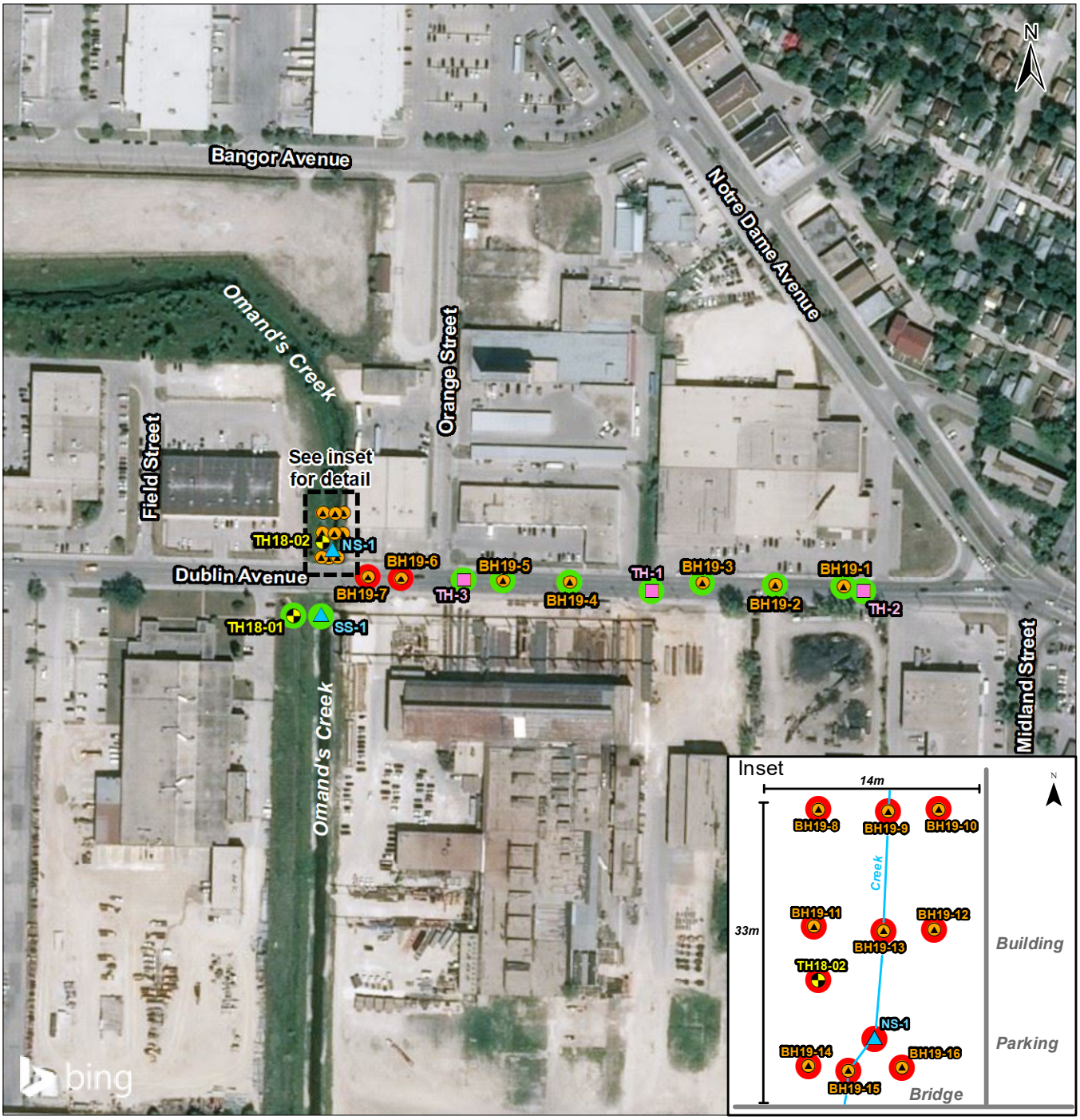
Figure No.
1

Title
Site Location Plan

Notes
1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

G:_GIS_Project_Folder\113733340\ArcMaps\RemediationPlan_Figure2_SoilExceedances_20190628.mxd Revised: 2019-07-03 By: ACampagotto



Legend

- Borehole Location (August 2018)
- Borehole Location (February 2019)
- Testhole Location
- Sediment Sample Location
- Location Exceeding Applicable CCME Guideline(s)
- Location Below Applicable CCME Guideline

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada
3. Orthoimagery: Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

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0 50 100 Metres

1:3,500 (at original document size of 8.5x11)

Stantec

Project Location
Dublin Ave at Omand's Creek;
Winnipeg, Manitoba

113733340

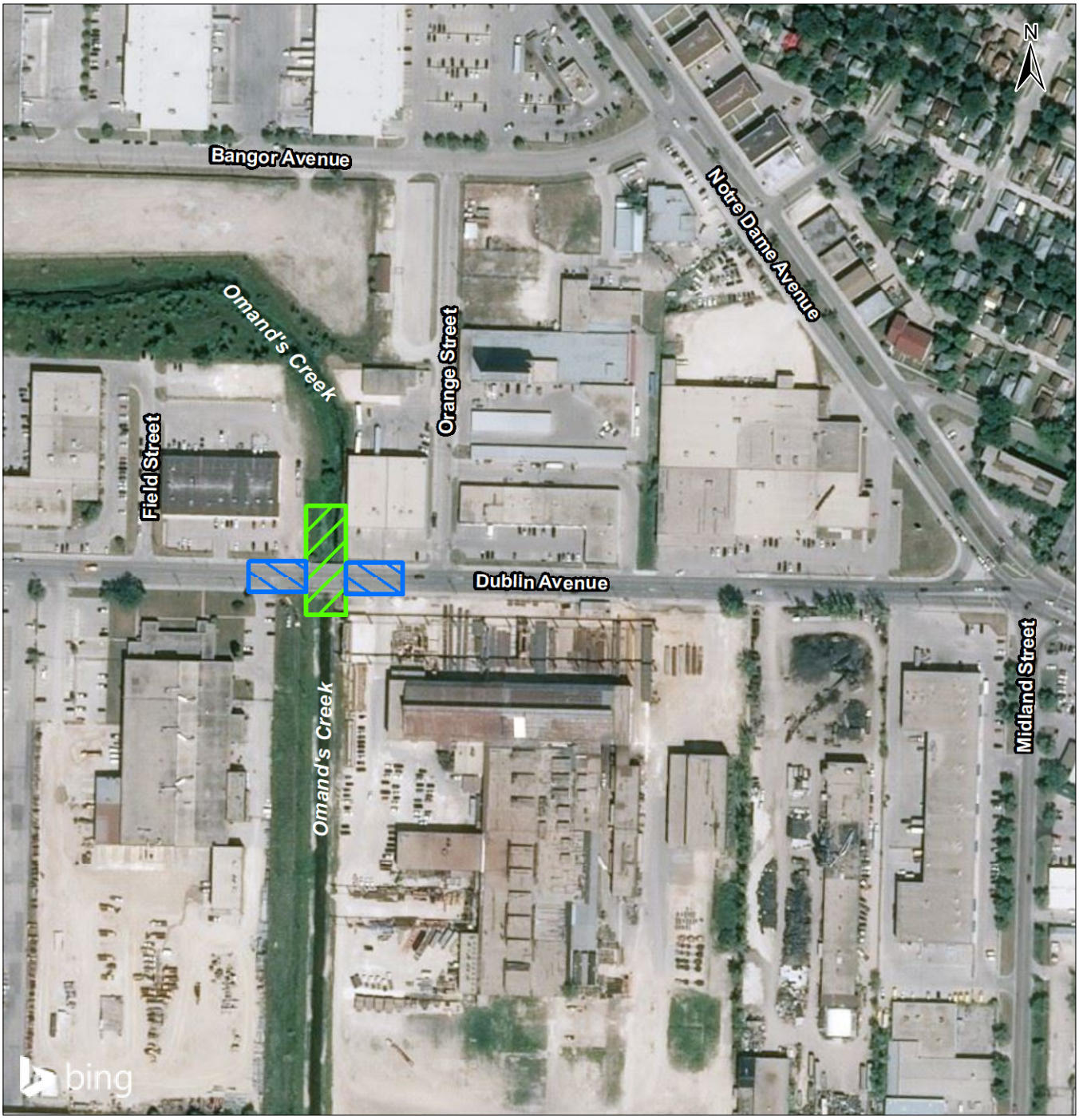
Prepared by AC on 2019-06-28
Technical Review by SC on 2019-06-28

Client/Project
Remediation Plan
Dublin Avenue at Omand's Creek and
Omand's Creek at the
Dublin Avenue Bridge, Winnipeg, Manitoba

Figure No.
2

Title
Sediment and Soil Exceedances

G:_GIS_Project_Folder\113733340\ArcMaps\RemediationPlan_Figure3_ProposedRemediation_20190628.mxd Revised: 2019-06-28 By: ACampagatto



Legend

- Proposed Roadway Remedial Area
- Proposed Creekbed Remedial Area

0 50 100 Metres

1:3,500 (at original document size of 8.5x11)

Stantec

Project Location
Dublin Ave at Omand's Creek;
Winnipeg, Manitoba

113733340

Prepared by AC on 2019-06-28
Technical Review by SC on 2019-06-28

Client/Project
Remediation Plan
Dublin Avenue at Omand's Creek and
Omand's Creek at the
Dublin Avenue Bridge, Winnipeg, Manitoba

Figure No.
3

Title
Proposed Remedial Areas

Notes

1. Coordinate System: NAD 1983 UTM Zone 14N
2. Base features provided by the Government of Manitoba and the Government of Canada
3. Orthoimagery: Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation.

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Table 1
Summary of Soil Analytical Results for Sample Locations
Within 30 m of Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Sample Location				BH19-6					BH19-7			
Sample Date				12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19
Sample ID				BH19-6 0.5-1.0	BH19-6 0.5-1.0 Lab-Dup	BH19-6 1.0-1.5	BH19-6 1.5-2.25	BH19-6 1.5-2.25 Lab-Dup	BH19-7 0.5-1.0	BH19-7 1.5-2.25	BH19-7 1.5-2.25 Lab-Dup	BH19-7 2.25-3.0
Sample Depth				0.5 - 1.0 m	0.5 - 1.0 m	1.0 - 1.5 m	1.5 m 2.25 m	1.5 - 2.25 m	0.5 - 1.0 m	1.5 m 2.25 m	1.5 - 2.25 m	2.25 - 3.0 m
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX
Laboratory Work Order				B910473	B910473	B910473	B910473	B910473	B910473	B910473	B910473	B910473
Laboratory Sample ID				VF3500	VF3500	VF3501	VF3502	VF3502	VF3504	VF3506	VF3506	VF3507
Sample Type	Units	CCME	MOE		Lab Replicate			Lab Replicate			Lab Replicate	
General Chemistry												
Moisture Content	%	n/v	n/a	26	-	26	17	17	26	19	-	18
BTEX and Petroleum Hydrocarbons												
Benzene	mg/kg	2.8[B] 2.9[C]	n/a	0.0092	-	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050
Toluene	mg/kg	330[D] 660[E]	n/a	<0.050	-	<0.050	<0.050	-	<0.050	<0.050	-	<0.050
Ethylbenzene	mg/kg	430[D] 860[E]	n/a	<0.010	-	<0.010	<0.010	-	<0.010	<0.010	-	<0.010
Xylene, m & p-	mg/kg	n/v	n/a	<0.040	-	<0.040	<0.040	-	<0.040	<0.040	-	<0.040
Xylene, o-	mg/kg	n/v	n/a	<0.020	-	<0.020	<0.020	-	<0.020	<0.020	-	<0.020
Xylenes, Total	mg/kg	230[D] 460[E]	n/a	<0.045	-	<0.045	<0.045	-	<0.045	<0.045	-	<0.045
PHC F1 (C6-C10 range)	mg/kg	[FG]	n/a	<10	-	<10	<10	-	<10	<10	-	<10
PHC F1 (C6-C10 range) minus BTEX	mg/kg	320[F] 800[G]	n/a	<10	-	<10	<10	-	<10	<10	-	<10
PHC F2 (>C10-C16 range)	mg/kg	[s7] 260[F] 1000[G]	n/a	<10	<10	<10	<10	-	<10	<10	-	<10
PHC F3 (>C16-C34 range)	mg/kg	2,500[F] 5,000[G]	n/a	99	90	<50	<50	-	<50	<50	-	<50
PHC F4 (>C34-C50 range)	mg/kg	6,600[F] 10,000[G]	n/a	78	65	<50	<50	-	<50	<50	-	<50
PHC F4 (>C34) Gravimetric	mg/kg	6,600--[F] 10,000--[G]	n/a	-	-	-	-	-	-	-	-	-
Chromatogram to baseline at C50	none	n/v	n/a	YES	YES	YES	YES	-	YES	YES	-	YES
Metals												
Aluminum	mg/kg	n/v	n/a	21,000	-	22,000	4,900	-	24,000	5,500	5,500	6,300
Antimony	mg/kg	40[A]	n/a	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Arsenic	mg/kg	12[A]	n/a	5.1	-	5.4	2.2	-	5.0	2.5	2.5	3.3
Barium	mg/kg	2,000[A]	n/a	170	-	150	35	-	160	55	53	56
Beryllium	mg/kg	8[A]	n/a	1.1	-	1.1	<0.40	-	1.2	0.53	<0.40	<0.40
Boron	mg/kg	n/v	n/a	17	-	17	11	-	17	11	12	11
Cadmium	mg/kg	22[A]	n/a	0.21	-	0.16	0.090	-	0.20	0.082	0.077	0.15
Chromium	mg/kg	87[A]	n/a	44	-	45	14	-	46	16	16	17
Cobalt	mg/kg	300[A]	n/a	13	-	12	3.5	-	12	4.0	3.8	4.7
Copper	mg/kg	91[A]	n/a	27	-	24	8.7	-	31	9.6	8.9	12
Iron	mg/kg	n/v	n/a	31,000	-	30,000	9,100	-	30,000	10,000	10,000	12,000
Lead	mg/kg	600[A]	n/a	28	-	16	3.8	-	19	4.7	4.6	5.0
Magnesium	mg/kg	n/v	n/a	14,000	-	16,000	50,000	-	11,000	50,000	51,000	44,000
Manganese	mg/kg	n/v	n/a	860	-	570	230	-	480	230	220	290
Mercury	mg/kg	50[A]	n/a	0.078	-	0.072	<0.050	-	0.071	0.084	0.059	0.050
Molybdenum	mg/kg	40[A]	n/a	0.73	-	<0.40	<0.40	-	<0.40	<0.40	<0.40	<0.40
Nickel	mg/kg	89[A]	n/a	33	-	35	11	-	36	12	12	15
Selenium	mg/kg	2.9[A]	n/a	<0.50	-	<0.50	<0.50	-	<0.50	<0.50	<0.50	<0.50
Silver	mg/kg	40[A]	n/a	<0.20	-	<0.20	<0.20	-	<0.20	<0.20	<0.20	<0.20
Thallium	mg/kg	1[A]	n/a	0.29	-	0.31	<0.10	-	0.33	0.10	<0.10	0.14
Tin	mg/kg	300[A]	n/a	1.6	-	1.1	<1.0	-	1.2	<1.0	<1.0	<1.0
Uranium	mg/kg	300[A]	n/a	1.8	-	1.2	0.53	-	1.6	0.71	0.68	0.65
Vanadium	mg/kg	130[A]	n/a	64	-	69	19	-	69	23	22	25
Zinc	mg/kg	410[A]	n/a	83	-	78	17	-	88	18	17	25

See notes on last page.

Table 1
Summary of Soil Analytical Results for Sample Locations
Within 30 m of Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Sample Location				BH19-6					BH19-7			
Sample Date				12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19	12-Feb-19
Sample ID				BH19-6 0.5-1.0	BH19-6 0.5-1.0 Lab-Dup	BH19-6 1.0-1.5	BH19-6 1.5-2.25	BH19-6 1.5-2.25 Lab-Dup	BH19-7 0.5-1.0	BH19-7 1.5-2.25	BH19-7 1.5-2.25 Lab-Dup	BH19-7 2.25-3.0
Sample Depth				0.5 - 1.0 m	0.5 - 1.0 m	1.0 - 1.5 m	1.5 m 2.25 m	1.5 - 2.25 m	0.5 - 1.0 m	1.5 m 2.25 m	1.5 - 2.25 m	2.25 - 3.0 m
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX
Laboratory Work Order				B910473	B910473	B910473	B910473	B910473	B910473	B910473	B910473	B910473
Laboratory Sample ID				VF3500	VF3500	VF3501	VF3502	VF3502	VF3504	VF3506	VF3506	VF3507
Sample Type	Units	CCME	MOE		Lab Replicate			Lab Replicate			Lab Replicate	
Non-Carcinogenic Polycyclic Aromatic Hydrocarbons												
Acenaphthene	mg/kg	0.28^{L}	96°	0.010	0.015	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050
Acenaphthylene	mg/kg	320^{L}	9.6^{O}	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050
Acridine	mg/kg	n/v	n/v	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	-	<0.010
Anthracene	mg/kg	32^{IKN}	$42{,}000^{O}$	0.019	0.030	<0.0040	<0.0040	-	0.014	<0.0040	-	<0.0040
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	n/v	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010	-	<0.010
Fluoranthene	mg/kg	180^{IKN}	9.6^{O}	0.075	0.11	<0.0050	<0.0050	-	0.058	<0.0050	-	<0.0050
Fluorene	mg/kg	0.25^{L}	$5{,}600^{O}$	0.014	0.021	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050
Methylnaphthalene, 2-	mg/kg	n/v	560_{s2}^{O}	0.040	0.048	<0.0050	<0.0050	-	0.0087	<0.0050	-	<0.0050
Naphthalene	mg/kg	0.013_{e}^{IL} 22^{J}	$2{,}800^{O}$	**0.024^{IL}**	**0.030^{IL}**	<0.0050	<0.0050	-	0.0068	<0.0050	-	<0.0050
Perylene	mg/kg	n/v	n/v	0.012	0.015	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050
Phenanthrene	mg/kg	0.046_{e}^{IL} 50^{J}	n/v	**0.078^{IL}**	**0.11^{IL}**	<0.0050	<0.0050	-	**0.049^{IL}**	<0.0050	-	<0.0050
Pyrene	mg/kg	100^{IJ}	96°	0.068	0.096	<0.0050	<0.0050	-	0.056	<0.0050	-	<0.0050
Low Molecular Weight PAHs	mg/kg	n/v	n/v	0.19	-	<0.010	<0.010	-	0.079	<0.010	-	<0.010
High Molecular Weight PAHs	mg/kg	n/v	n/v	0.32	-	<0.0050	<0.0050	-	0.25	<0.0050	-	<0.0050
Total PAH	mg/kg	n/v	n/v	0.51	-	<0.010	<0.010	-	0.32	<0.010	-	<0.010
Carcinogenic Polycyclic Aromatic Hydrocarbons												
Benzo(a)anthracene	mg/kg	10^{IJ}	n/a	0.030	0.045	<0.0050	<0.0050	-	0.026	<0.0050	-	<0.0050
Benzo(a)pyrene	mg/kg	72^{IKN} $8{,}800^{L}$	n/a	0.026	0.036	<0.0050	<0.0050	-	0.022	<0.0050	-	<0.0050
Benzo(b/j)fluoranthene	mg/kg	10^{IJ}	n/a	0.040	0.055	<0.0050	<0.0050	-	0.027	<0.0050	-	<0.0050
Benzo(c)phenanthrene	mg/kg	n/v	n/a	<0.0050	0.0070	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050
Benzo(e)pyrene	mg/kg	n/v	n/a	0.025	0.034	<0.0050	<0.0050	-	0.015	<0.0050	-	<0.0050
Benzo(g,h,i)perylene	mg/kg	n/v	n/a	0.020	0.026	<0.0050	<0.0050	-	0.012	<0.0050	-	<0.0050
Benzo(k)fluoranthene	mg/kg	10^{IJ}	n/a	0.012	0.017	<0.0050	<0.0050	-	0.0091	<0.0050	-	<0.0050
Chrysene	mg/kg	n/v	n/a	0.036	0.047	<0.0050	<0.0050	-	0.023	<0.0050	-	<0.0050
Dibenzo(a,h)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	0.0073	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050
Indeno(1,2,3-cd)pyrene	mg/kg	10^{IJ}	n/a	0.017	0.024	<0.0050	<0.0050	-	0.013	<0.0050	-	<0.0050
Benzo(a)pyrene Total Potency Equivalents	mg/kg	$5.3_{a,b,Ch}$	n/a	0.039	-	<0.0071	<0.0071	-	0.032	<0.0071	-	<0.0071
Index of Additive Cancer Risk	none	n/v	n/a	0.52	-	<0.10	<0.10	-	0.39	<0.10	-	<0.10

See notes on last page.

Table 1
Summary of Soil Analytical Results for Sample Locations
Within 30 m of Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Notes:

CCME	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained soil
B	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained surface soil - Inhalation of Indoor Air Check (slab-on-grade)
C	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained subsoil - Inhalation of Indoor Air Check (slab-on-grade)
D	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained surface soil - Soil Contact Guideline
E	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained sub soil - Soil Contact Guideline
F	Canada Wide Standards for PHC in Soil - Industrial- Fine - Surface soils - Eco Soil Contact (Revised Jan 2008)
G	Canada Wide Standards for PHC in Soil - Industrial- Fine - Surface and Sub-Surface soils- Management Limit (Revised Jan 2008)
H	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 1 - Direct contact)
I	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 1 - Environmental health guidelines based on non-carcinogenic effects of PAHs)
J	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Interim/Provisional Soil Quality Critera, CCME 1991)
K	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Environmental Health)
L	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Protection of freshwater life)
M	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Soil and food ingestion)
N	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Soil Contact)
MOE	Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario (MOE, 2011)
O	Soil Components for Table 3 - Full Depth, Non-potable Water Scenario for Industrial/Commercial Land Use, Medium/Fine Textured Soil, Soil Contact S2 Risk
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
n/a	Not applicable.
-	Parameter not analyzed / not available.
**	Criterion applies to F4 but when the chromatogram fails to return to baseline at C50, the F4G analysis must be completed and the greater concentration of F4 or F4G is compared to the criterion.
a,b,c	SQG based on an incremental lifetime cancer risk (ILCR) of 1 in 100,000 (10e-5). B[a]P TPE = Benzo[a]pyrene Total Potency Equivalents, which is the sum of estimated cancer potency relative to B[a]P for all potentially carcinogenic unsubstituted PAHs. The B[a]P TPE for a soil sample is calculated by multiplying the concentration of each PAH in the sample by its B[a]P Potency Equivalence Factor (PEF), given below, and summing the products: Benz[a]anthracene = 0.1, Benzo[a]pyrene = 1, Benzo[b+j+k]fluoranthene = 0.1, Benzo[g,h,i]perylene = 0.01, Chrysene = 0.01, Dibenz[a,h]anthracene =1, Indeno[1,2,3-cd]pyrene = 0.1.
e	This value is the Soil Quality Guideline for the Protection of Freshwater Life. Users may wish to consider the application, on a site-specific basis, of this value where potential impacts to nearby surface waters are a concern (the value may be less than the common limit of detection in some jurisdictions; and the 1991 Interim Soil Quality Criteria for phenanthrene).
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	The criterion is for methylnaphthalenes, therefore the sum of 1-methylnaphthalene and 2-methylnaphthalene must be calculated for comparison.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
CD	Detection limits raised due to dilution to bring analyte within the calibrated range.
JP	Detection limits raised due to dilution as a result of sample matrix interference.
XY	Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 60%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table 2
Summary of Soil Analytical Results for Sample Locations
>30 m from Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Sample Location				TH-2					BH19-1					
Sample Date				13-Aug-18	13-Aug-18	13-Aug-18		13-Aug-18	11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19		11-Feb-19
Sample ID				TH-2-3	TH-2-4	QAQC-1		TH-2-4 Lab-Dup	BH19-1 1.0-1.5	BH19-1 1.0-1.5 Lab-Dup	BH19-1 1.5-2.25	QC-01		QC-01 Lab-Dup
Sample Depth				1.2 - 1.5 m	1.5 - 2.25 m	1.5 - 2.25 m		1.5 - 2.25 m	1.0 - 1.5 m	1.0 - 1.5 m	1.5 - 2.25 m	1.5 - 2.25 m		1.5 - 2.25 m
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC
Laboratory				MAXX	MAXX	MAXX		MAXX	MAXX	MAXX	MAXX	MAXX		MAXX
Laboratory Work Order				B867552	B867552	B867552		B867552	B910274	B910274	B910274	B910274		B910274
Laboratory Sample ID				UB3292	UB3293	UB3300	RPD	UB3293	VF2769	VF2769	VF2770	VF2772	RPD	VF2772
Sample Type	Units	CCME	MOE			Field Duplicate	(%)	Lab Replicate		Lab Replicate		Field Duplicate	(%)	Lab Replicate
General Chemistry														
Moisture Content	%	n/v	n/a	15	29	29	0%	-	16	-	26	26	0%	28
Soluble (2:1) pH	S.U.	6 - 8[A]	n/a	-	**8.24[A]**	**8.11[A]**	nc	**8.24[A]**	-	-	-	-	-	-
Physical Properties														
Particle Size (<0.075mm)	%	n/v	n/a	-	74	-	-	-	-	-	-	-	-	-
Sieve - #200 (>0.075mm)	%	n/v	n/a	-	26	-	-	-	-	-	-	-	-	-
Grain Size	none	n/v	n/a	-	FINE	-	-	-	-	-	-	-	-	-
BTEX and Petroleum Hydrocarbons														
Benzene	mg/kg	2.8[B] 2.9[C]	n/a	0.025	<0.0050	<0.0050	nc	-	<0.0050 JP	-	<0.0050	<0.0050	nc	-
Toluene	mg/kg	330[D] 660[E]	n/a	0.036	0.043	<0.020	nc	-	<0.050	-	<0.050	<0.050	nc	-
Ethylbenzene	mg/kg	430[D] 860[E]	n/a	0.10	<0.010	<0.010	nc	-	<0.010	-	0.020	0.018	nc	-
Xylene, m & p-	mg/kg	n/v	n/a	0.19	<0.040	<0.040	nc	-	<0.040	-	0.081	0.072	nc	-
Xylene, o-	mg/kg	n/v	n/a	0.042	<0.020	<0.020	nc	-	<0.020	-	<0.020	<0.020	nc	-
Xylenes, Total	mg/kg	230[D] 460[E]	n/a	0.23	<0.045	<0.045	nc	-	<0.045	-	0.081	0.072	nc	-
PHC F1 (C6-C10 range)	mg/kg	[FG]	n/a	<10	<10	<10	nc	-	<10	-	<10	<10	nc	-
PHC F1 (C6-C10 range) minus BTEX	mg/kg	320[F] 800[G]	n/a	<10	<10	<10	nc	-	<10	-	<10	<10	nc	-
PHC F2 (>C10-C16 range)	mg/kg	260[F] 1000[G]	n/a	28	<10	<10	nc	-	<10	<10	<10	<10	nc	-
PHC F3 (>C16-C34 range)	mg/kg	2,500[F] 5,000[G]	n/a	320	53	75	nc	-	<50	<50	54	<50	nc	-
PHC F4 (>C34-C50 range)	mg/kg	6,600[F] 10,000[G]	n/a	1,000	<50	95	nc	-	<50	<50	<50	<50	nc	-
PHC F4 (>C34) Gravimetric	mg/kg	6,600[F] 10,000[G]	n/a	4,600	-	-	-	-	-	-	-	-	-	-
Chromatogram to baseline at C50	none	n/v	n/a	NO	YES	YES	nc	-	YES	YES	YES	YES	-	-
Metals														
Aluminum	mg/kg	n/v	n/a	-	17,000	21,000	21%	-	4,900	-	19,000	15,000	24%	-
Antimony	mg/kg	40[A]	n/a	-	<0.50	<0.50	nc	-	<0.50	-	<0.50	<0.50	nc	-
Arsenic	mg/kg	12[A]	n/a	-	6.8	7.3	7%	-	3.2	-	8.5	5.2	48%	-
Barium	mg/kg	2,000[A]	n/a	-	200	230	14%	-	45	-	200	150	29%	-
Beryllium	mg/kg	8[A]	n/a	-	0.88	1.1	nc	-	<0.40	-	1.0	0.63	nc	-
Boron	mg/kg	n/v	n/a	-	14	19	30%	-	13	-	10	15	40%	-
Cadmium	mg/kg	22[A]	n/a	-	0.18	0.20	nc	-	0.080	-	0.23	0.17	nc	-
Chromium	mg/kg	87[A]	n/a	-	44	54	20%	-	14	-	44	39	12%	-
Cobalt	mg/kg	300[A]	n/a	-	13	15	14%	-	3.3	-	13	9.9	27%	-
Copper	mg/kg	91[A]	n/a	-	30	36	18%	-	7.7	-	30	22	31%	-
Iron	mg/kg	n/v	n/a	-	22,000	30,000	31%	-	9,100	-	30,000	23,000	26%	-
Lead	mg/kg	600[A]	n/a	-	15	20	29%	-	3.6	-	12	8.7	32%	-
Magnesium	mg/kg	n/v	n/a	-	17,000	23,000	30%	-	63,000 CD	-	17,000	33,000	**64%**	-
Manganese	mg/kg	n/v	n/a	-	390	550	34%	-	210	-	450	430	5%	-
Mercury	mg/kg	50[A]	n/a	-	<0.050	<0.050	nc	-	<0.050	-	0.058	<0.050	nc	-
Molybdenum	mg/kg	40[A]	n/a	-	1.1	1.2	nc	-	<0.40	-	1.7	0.79	nc	-
Nickel	mg/kg	89[A]	n/a	-	38	48	23%	-	9.7	-	37	30	21%	-
Selenium	mg/kg	2.9[A]	n/a	-	<0.50	<0.50	nc	-	<0.50	-	<0.50	<0.50	nc	-
Silver	mg/kg	40[A]	n/a	-	<0.20	<0.20	nc	-	<0.20	-	<0.20	<0.20	nc	-
Thallium	mg/kg	1[A]	n/a	-	0.28	0.33	nc	-	<0.10	-	0.26	0.26	nc	-
Tin	mg/kg	300[A]	n/a	-	1.0	1.3	nc	-	<1.0	-	1.1	<1.0	nc	-
Uranium	mg/kg	300[A]	n/a	-	1.3	1.4	7%	-	0.52	-	1.2	0.92	nc	-
Vanadium	mg/kg	130[A]	n/a	-	59	73	21%	-	20	-	69	54	24%	-
Zinc	mg/kg	410[A]	n/a	-	71	87	20%	-	15	-	76	56	30%	-

See notes on last page.

Table 2
Summary of Soil Analytical Results for Sample Locations
>30 m from Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Sample Location				TH-2					BH19-1					
Sample Date				13-Aug-18	13-Aug-18	13-Aug-18		13-Aug-18	11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19		11-Feb-19
Sample ID				TH-2-3	TH-2-4	QAQC-1		TH-2-4 Lab-Dup	BH19-1 1.0-1.5	BH19-1 1.0-1.5 Lab-Dup	BH19-1 1.5-2.25	QC-01		QC-01 Lab-Dup
Sample Depth				1.2 - 1.5 m	1.5 - 2.25 m	1.5 - 2.25 m		1.5 - 2.25 m	1.0 - 1.5 m	1.0 - 1.5 m	1.5 - 2.25 m	1.5 - 2.25 m		1.5 - 2.25 m
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC
Laboratory				MAXX	MAXX	MAXX		MAXX	MAXX	MAXX	MAXX	MAXX		MAXX
Laboratory Work Order				B867552	B867552	B867552		B867552	B910274	B910274	B910274	B910274		B910274
Laboratory Sample ID				UB3292	UB3293	UB3300	RPD	UB3293	VF2769	VF2769	VF2770	VF2772	RPD	VF2772
Sample Type	Units	CCME	MOE			Field Duplicate	(%)	Lab Replicate		Lab Replicate		Field Duplicate	(%)	Lab Replicate
Non-Carcinogenic Polycyclic Aromatic Hydrocarbons														
Acenaphthene	mg/kg	n/v	96^{M}	0.13 JP	0.0083	0.0088	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Acenaphthylene	mg/kg	n/v	9.6^{M}	<0.050 JP	<0.0050	<0.0050	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Acridine	mg/kg	n/v	n/v	<0.10 JP	<0.010	<0.010	nc	-	<0.010	-	<0.010	<0.010	nc	-
Anthracene	mg/kg	32^{IKL}	$42{,}000^{M}$	0.20 JP	0.0063	0.0063	nc	-	<0.0040	-	<0.0040	<0.0040	nc	-
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	n/v	<0.10 JP	<0.010	<0.010	nc	-	<0.010	-	<0.010	<0.010	nc	-
Fluoranthene	mg/kg	180^{IKL}	9.6^{M}	0.78 JP	0.021	0.025	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Fluorene	mg/kg	n/v	$5{,}600^{M}$	0.23 JP	0.013	0.013	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Methylnaphthalene, 2-	mg/kg	n/v	560_{s2}^{M}	0.20 JP	<0.0050	<0.0050	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Naphthalene	mg/kg	22^{J}	$2{,}800^{M}$	0.15 JP	<0.0050	<0.0050	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Perylene	mg/kg	n/v	n/v	<0.050 JP	<0.0050	<0.0050	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Phenanthrene	mg/kg	50^{J}	n/v	0.90 JP	0.058	0.056	4%	-	<0.0050	-	<0.0050	<0.0050	nc	-
Pyrene	mg/kg	100^{IJ}	96^{M}	0.59 JP	0.017	0.019	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Low Molecular Weight PAHs	mg/kg	n/v	n/v	1.8	0.085	0.084	1%	-	<0.010	-	<0.010	<0.010	nc	-
High Molecular Weight PAHs	mg/kg	n/v	n/v	2.9	0.069	0.089	25%	-	<0.0050	-	<0.0050	<0.0050	nc	-
Total PAH	mg/kg	n/v	n/v	4.7	0.15	0.17	13%	-	<0.010	-	<0.010	<0.010	nc	-
Carcinogenic Polycyclic Aromatic Hydrocarbons														
Benzo(a)anthracene	mg/kg	10^{IJ}	n/a	0.32 JP	0.0069	0.0073	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Benzo(a)pyrene	mg/kg	72^{IKL}	n/a	0.24 JP	0.0070	0.0077	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Benzo(b/j)fluoranthene	mg/kg	10^{IJ}	n/a	0.35 JP	0.011	0.014	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Benzo(c)phenanthrene	mg/kg	n/v	n/a	<0.050 JP	<0.0050	<0.0050	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Benzo(e)pyrene	mg/kg	n/v	n/a	0.20 JP	<0.0050	0.0083	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Benzo(g,h,i)perylene	mg/kg	n/v	n/a	0.16 JP	<0.0050	0.0073	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Benzo(k)fluoranthene	mg/kg	10^{IJ}	n/a	0.095 JP	<0.0050	<0.0050	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Chrysene	mg/kg	n/v	n/a	0.25 JP	0.0066	<0.0050	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Dibenzo(a,h)anthracene	mg/kg	10^{IJ}	n/a	<0.050 JP	<0.0050	<0.0050	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Indeno(1,2,3-cd)pyrene	mg/kg	10^{IJ}	n/a	0.12 JP	<0.0050	0.0080	nc	-	<0.0050	-	<0.0050	<0.0050	nc	-
Benzo(a)pyrene Total Potency Equivalents	mg/kg	$5.3_{a,b,c}^{H}$	n/a	0.36	0.012	0.014	nc	-	<0.0071	-	<0.0071	<0.0071	nc	-
Index of Additive Cancer Risk	none	n/v	n/a	4.7	0.14	0.16	nc	-	<0.10	-	<0.10	<0.10	nc	-

See notes on last page.

Table 2
Summary of Soil Analytical Results for Sample Locations
>30 m from Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Sample Location				BH19-2			BH19-3			TH-1		BH19-4	
Sample Date				11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19	13-Aug-18	13-Aug-18	11-Feb-19	11-Feb-19
Sample ID				BH19-2 0.5-1.0	BH19-2 1.5-2.25	BH19-2 1.5-2.25 Lab-Dup	BH19-3 0.5-1.0	BH19-3 1.5-2.25	BH19-3 1.5-2.25 Lab-Dup	TH-1-1	TH-1-1 Lab-Dup	BH19-4 1.5-2.25	BH19-4 2.25-3.0
Sample Depth				0.5 - 1.0 m	1.5 - 2.25 m	1.5 - 2.25 m	0.5 - 1.0 m	1.5 2.25 m	1.5 - 2.25 m	0 - 0.6 m	0 - 0.6 m	1.5 - 2.25 m	2.25 m 3.0
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX
Laboratory Work Order				B910274	B910274	B910274	B910274	B910274	B910274	B867552	B867552	B910274	B910274
Laboratory Sample ID				VF2773	VF2775	VF2775	VF2777	VF2779	VF2779	UB3285	UB3285	VF2783	VF2784
Sample Type	Units	CCME	MOE			Lab Replicate			Lab Replicate		Lab Replicate		
General Chemistry													
Moisture Content	%	n/v	n/a	23	19	-	25	18	-	23	-	24	22
Soluble (2:1) pH	S.U.	6 - 8[A]	n/a	-	-	-	-	-	-	**8.89[A]**	-	-	-
Physical Properties													
Particle Size (<0.075mm)	%	n/v	n/a	5.1	-	-	-	6.0	6.2	87	-	-	-
Sieve - #200 (>0.075mm)	%	n/v	n/a	95	-	-	-	94	94	13	-	-	-
Grain Size	none	n/v	n/a	FINE	-	-	-	FINE	FINE	FINE	-	-	-
BTEX and Petroleum Hydrocarbons													
Benzene	mg/kg	2.8[B] 2.9[C]	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.014	0.019	<0.0050	<0.0050
Toluene	mg/kg	330[D] 660[E]	n/a	<0.050	<0.050	-	<0.050	<0.050	-	0.049	0.050	<0.050	<0.050
Ethylbenzene	mg/kg	430[D] 860[E]	n/a	<0.010	<0.010	-	<0.010	<0.010	-	<0.010	<0.010	<0.010	<0.010
Xylene, m & p-	mg/kg	n/v	n/a	<0.040	<0.040	-	<0.040	<0.040	-	<0.040	<0.040	<0.040	<0.040
Xylene, o-	mg/kg	n/v	n/a	<0.020	<0.020	-	<0.020	<0.020	-	<0.020	<0.020	<0.020	<0.020
Xylenes, Total	mg/kg	230[D] 460[E]	n/a	<0.045	<0.045	-	<0.045	<0.045	-	<0.045	-	<0.045	<0.045
PHC F1 (C6-C10 range)	mg/kg	[FG]	n/a	<10	<10	-	<10	<10	-	<10	<10	<10	<10
PHC F1 (C6-C10 range) minus BTEX	mg/kg	320[F] 800[G]	n/a	<10	<10	-	<10	<10	-	<10	-	<10	<10
PHC F2 (>C10-C16 range)	mg/kg	260[F] 1000[G]	n/a	<10	<10	-	<10	<10	-	<10	-	<10	<10
PHC F3 (>C16-C34 range)	mg/kg	2,500[F] 5,000[G]	n/a	<50	<50	-	<50	<50	-	<50	-	<50	<50
PHC F4 (>C34-C50 range)	mg/kg	6,600[F] 10,000[G]	n/a	<50	<50	-	<50	<50	-	<50	-	<50	<50
PHC F4 (>C34) Gravimetric	mg/kg	6,600[F] 10,000[G]	n/a	-	-	-	-	-	-	-	-	-	-
Chromatogram to baseline at C50	none	n/v	n/a	YES	YES	-	YES	YES	-	YES	-	YES	YES
Metals													
Aluminum	mg/kg	n/v	n/a	24,000	6,300	6,200	26,000	5,800	-	9,800	-	18,000	17,000
Antimony	mg/kg	40[A]	n/a	<0.50	<0.50	<0.50	<0.50	<0.50	-	0.65	-	<0.50	<0.50
Arsenic	mg/kg	12[A]	n/a	5.6	2.8	2.7	5.7	2.4	-	3.2	-	4.1	4.5
Barium	mg/kg	2,000[A]	n/a	160	66	61	220	50	-	150	-	150	210
Beryllium	mg/kg	8[A]	n/a	0.97	<0.40	<0.40	1.2	<0.40	-	0.51	-	0.78	0.60
Boron	mg/kg	n/v	n/a	16	12	12	13	12	-	18	-	16	14
Cadmium	mg/kg	22[A]	n/a	0.17	0.13	0.14	0.088	0.082	-	0.11	-	0.16	0.16
Chromium	mg/kg	87[A]	n/a	44	17	17	49	15	-	38	-	37	41
Cobalt	mg/kg	300[A]	n/a	11	4.5	4.3	13	3.6	-	8.7	-	11	12
Copper	mg/kg	91[A]	n/a	22	11	11	23	8.1	-	37	-	20	28
Iron	mg/kg	n/v	n/a	28,000	11,000	11,000	33,000	9,800	-	15,000	-	24,000	27,000
Lead	mg/kg	600[A]	n/a	11	4.7	4.6	12	3.8	-	45	-	9.4	9.7
Magnesium	mg/kg	n/v	n/a	23,000	47,000	48,000	13,000	56,000 CD	-	31,000	-	31,000	31,000
Manganese	mg/kg	n/v	n/a	390	270	260	570	220	-	300	-	410	600
Mercury	mg/kg	50[A]	n/a	0.059	<0.050	<0.050	<0.050	<0.050	-	<0.050	-	<0.050	<0.050
Molybdenum	mg/kg	40[A]	n/a	0.46	0.70	0.60	0.51	<0.40	-	1.1	-	0.41	0.63
Nickel	mg/kg	89[A]	n/a	33	13	13	37	10	-	23	-	27	37
Selenium	mg/kg	2.9[A]	n/a	<0.50	<0.50	<0.50	<0.50	<0.50	-	<0.50	-	<0.50	<0.50
Silver	mg/kg	40[A]	n/a	<0.20	<0.20	<0.20	<0.20	<0.20	-	<0.20	-	<0.20	<0.20
Thallium	mg/kg	1[A]	n/a	0.29	0.12	0.11	0.34	<0.10	-	0.13	-	0.22	0.36
Tin	mg/kg	300[A]	n/a	1.1	<1.0	<1.0	1.1	<1.0	-	3.1	-	<1.0	<1.0
Uranium	mg/kg	300[A]	n/a	0.95	0.67	0.71	1.8	0.58	-	1.4	-	1.1	0.96
Vanadium	mg/kg	130[A]	n/a	70	23	23	82	22	-	29	-	55	51
Zinc	mg/kg	410[A]	n/a	76	24	24	83	20	-	50	-	69	66

See notes on last page.

Table 2
Summary of Soil Analytical Results for Sample Locations
>30 m from Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Sample Location				BH19-2			BH19-3			TH-1		BH19-4	
Sample Date				11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19	11-Feb-19	13-Aug-18	13-Aug-18	11-Feb-19	11-Feb-19
Sample ID				BH19-2 0.5-1.0	BH19-2 1.5-2.25	BH19-2 1.5-2.25 Lab-Dup	BH19-3 0.5-1.0	BH19-3 1.5-2.25	BH19-3 1.5-2.25 Lab-Dup	TH-1-1	TH-1-1 Lab-Dup	BH19-4 1.5-2.25	BH19-4 2.25-3.0
Sample Depth				0.5 - 1.0 m	1.5 - 2.25 m	1.5 - 2.25 m	0.5 - 1.0 m	1.5 2.25 m	1.5 - 2.25 m	0 - 0.6 m	0 - 0.6 m	1.5 - 2.25 m	2.25 m 3.0
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX
Laboratory Work Order				B910274	B910274	B910274	B910274	B910274	B910274	B867552	B867552	B910274	B910274
Laboratory Sample ID				VF2773	VF2775	VF2775	VF2777	VF2779	VF2779	UB3285	UB3285	VF2783	VF2784
Sample Type	Units	CCME	MOE			Lab Replicate			Lab Replicate		Lab Replicate		
Non-Carcinogenic Polycyclic Aromatic Hydrocarbons													
Acenaphthene	mg/kg	n/v	96^{M}	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.042	-	<0.0050	<0.0050
Acenaphthylene	mg/kg	n/v	9.6^{M}	<0.0050	<0.0050	-	<0.0050	<0.0050	-	<0.0050	-	<0.0050	<0.0050
Acridine	mg/kg	n/v	n/v	<0.010	<0.010	-	<0.010	<0.010	-	<0.010	-	<0.010	<0.010
Anthracene	mg/kg	32^{IKL}	$42{,}000^{M}$	<0.0040	<0.0040	-	<0.0040	<0.0040	-	0.069	-	<0.0040	<0.0040
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	n/v	<0.010	<0.010	-	<0.010	<0.010	-	<0.010	-	<0.010	<0.010
Fluoranthene	mg/kg	180^{IKL}	9.6^{M}	0.0094	<0.0050	-	<0.0050	<0.0050	-	0.35	-	0.0066	<0.0050
Fluorene	mg/kg	n/v	$5{,}600^{M}$	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.026	-	<0.0050	<0.0050
Methylnaphthalene, 2-	mg/kg	n/v	560_{s2}^{M}	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.045	-	<0.0050	<0.0050
Naphthalene	mg/kg	22^{J}	$2{,}800^{M}$	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.032	-	<0.0050	<0.0050
Perylene	mg/kg	n/v	n/v	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.030	-	<0.0050	<0.0050
Phenanthrene	mg/kg	50^{J}	n/v	0.0097	<0.0050	-	<0.0050	<0.0050	-	0.28	-	<0.0050	<0.0050
Pyrene	mg/kg	100^{IJ}	96^{M}	0.0084	<0.0050	-	<0.0050	<0.0050	-	0.29	-	<0.0050	<0.0050
Low Molecular Weight PAHs	mg/kg	n/v	n/v	<0.010	<0.010	-	<0.010	<0.010	-	0.49	-	<0.010	<0.010
High Molecular Weight PAHs	mg/kg	n/v	n/v	0.018	<0.0050	-	<0.0050	<0.0050	-	1.5	-	0.0066	<0.0050
Total PAH	mg/kg	n/v	n/v	0.028	<0.010	-	<0.010	<0.010	-	2.0	-	<0.010	<0.010
Carcinogenic Polycyclic Aromatic Hydrocarbons													
Benzo(a)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.15	-	<0.0050	<0.0050
Benzo(a)pyrene	mg/kg	72^{IKL}	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.15	-	<0.0050	<0.0050
Benzo(b/j)fluoranthene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.19	-	<0.0050	<0.0050
Benzo(c)phenanthrene	mg/kg	n/v	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.022 XY	-	<0.0050	<0.0050
Benzo(e)pyrene	mg/kg	n/v	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.089	-	<0.0050	<0.0050
Benzo(g,h,i)perylene	mg/kg	n/v	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.082	-	<0.0050	<0.0050
Benzo(k)fluoranthene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.061	-	<0.0050	<0.0050
Chrysene	mg/kg	n/v	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.12	-	<0.0050	<0.0050
Dibenzo(a,h)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.019	-	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	-	<0.0050	<0.0050	-	0.11	-	<0.0050	<0.0050
Benzo(a)pyrene Total Potency Equivalents	mg/kg	$5.3_{a,b,c}^{H}$	n/a	<0.0071	<0.0071	-	<0.0071	<0.0071	-	0.22	-	<0.0071	<0.0071
Index of Additive Cancer Risk	none	n/v	n/a	<0.10	<0.10	-	<0.10	<0.10	-	2.6	-	<0.10	<0.10

See notes on last page.

Table 2
Summary of Soil Analytical Results for Sample Locations
>30 m from Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Sample Location				BH19-5					TH-3
Sample Date				11-Feb-19	11-Feb-19	11-Feb-19		11-Feb-19	13-Aug-18
Sample ID				BH19-5 1.0-1.5	BH19-5 1.5-2.25	QC-02		BH19-5 2.25-3.0	TH-3-4
Sample Depth				1.0 - 1.5 m	1.5 - 2.25 m	1.5 - 2.25 m		2.25 - 3.0 m	1.5 - 2.4 m
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX		MAXX	MAXX
Laboratory Work Order				B910274	B910274	B910274		B910274	B867552
Laboratory Sample ID				VF2786	VF2787	VF2789	RPD	VF2788	UB3298
Sample Type	Units	CCME	MOE			Field Duplicate	(%)		
General Chemistry									
Moisture Content	%	n/v	n/a	19	22	19	14%	31	17
Soluble (2:1) pH	S.U.	6 - 8[A]	n/a	-	-	-	-	-	**9.03[A]**
Physical Properties									
Particle Size (<0.075mm)	%	n/v	n/a	-	-	-	-	-	91
Sieve - #200 (>0.075mm)	%	n/v	n/a	-	-	-	-	-	9.0
Grain Size	none	n/v	n/a	-	-	-	-	-	FINE
BTEX and Petroleum Hydrocarbons									
Benzene	mg/kg	2.8[B] 2.9[C]	n/a	<0.0050	<0.0050	<0.0050	nc	<0.0050	<0.0050
Toluene	mg/kg	330[D] 660[E]	n/a	<0.050	<0.050	<0.050	nc	<0.050	<0.020
Ethylbenzene	mg/kg	430[D] 860[E]	n/a	<0.010	<0.010	<0.010	nc	<0.010	<0.010
Xylene, m & p-	mg/kg	n/v	n/a	<0.040	<0.040	<0.040	nc	<0.040	<0.040
Xylene, o-	mg/kg	n/v	n/a	<0.020	<0.020	<0.020	nc	<0.020	<0.020
Xylenes, Total	mg/kg	230[D] 460[E]	n/a	<0.045	<0.045	<0.045	nc	<0.045	<0.045
PHC F1 (C6-C10 range)	mg/kg	[FG]	n/a	<10	<10	<10	nc	<10	<10
PHC F1 (C6-C10 range) minus BTEX	mg/kg	[s7] 320[F] 800[G]	n/a	<10	<10	<10	nc	<10	<10
PHC F2 (>C10-C16 range)	mg/kg	260[F] 1000[G]	n/a	<10	<10	<10	nc	<10	<10
PHC F3 (>C16-C34 range)	mg/kg	2,500[F] 5,000[G]	n/a	<50	120	<50	nc	<50	84
PHC F4 (>C34-C50 range)	mg/kg	6,600[F] 10,000[G]	n/a	<50	<50	<50	nc	<50	99
PHC F4 (>C34) Gravimetric	mg/kg	6,600**[F] 10,000**[G]	n/a	-	-	-	-	-	-
Chromatogram to baseline at C50	none	n/v	n/a	YES	YES	YES	-	YES	YES
Metals									
Aluminum	mg/kg	n/v	n/a	10,000	7,200	8,700	19%	17,000	6,400
Antimony	mg/kg	40[A]	n/a	<0.50	<0.50	<0.50	nc	<0.50	<0.50
Arsenic	mg/kg	12[A]	n/a	2.6	3.2	2.9	10%	10	3.0
Barium	mg/kg	2,000[A]	n/a	83	64	74	14%	240	51
Beryllium	mg/kg	8[A]	n/a	0.42	<0.40	<0.40	nc	0.92	<0.40
Boron	mg/kg	n/v	n/a	11	12	12	0%	20	12
Cadmium	mg/kg	22[A]	n/a	0.11	0.23	0.18	nc	0.25	0.13
Chromium	mg/kg	87[A]	n/a	23	17	21	21%	37	17
Cobalt	mg/kg	300[A]	n/a	5.9	4.8	5.5	14%	14	4.7
Copper	mg/kg	91[A]	n/a	13	12	14	15%	34	12
Iron	mg/kg	n/v	n/a	15,000	13,000	14,000	7%	29,000	11,000
Lead	mg/kg	600[A]	n/a	5.7	15	15	0%	14	4.5
Magnesium	mg/kg	n/v	n/a	44,000	42,000	42,000	0%	15,000	49,000
Manganese	mg/kg	n/v	n/a	280	350	350	0%	640	310
Mercury	mg/kg	50[A]	n/a	0.092	<0.050	<0.050	nc	<0.050	<0.050
Molybdenum	mg/kg	40[A]	n/a	<0.40	<0.40	<0.40	nc	1.8	<0.40
Nickel	mg/kg	89[A]	n/a	16	15	16	6%	40	14
Selenium	mg/kg	2.9[A]	n/a	<0.50	<0.50	<0.50	nc	<0.50	<0.50
Silver	mg/kg	40[A]	n/a	<0.20	<0.20	<0.20	nc	<0.20	<0.20
Thallium	mg/kg	1[A]	n/a	0.14	0.14	0.14	nc	0.28	0.13
Tin	mg/kg	300[A]	n/a	<1.0	<1.0	1.1	nc	<1.0	<1.0
Uranium	mg/kg	300[A]	n/a	0.93	0.72	0.90	nc	1.1	0.58
Vanadium	mg/kg	130[A]	n/a	35	25	30	18%	64	26
Zinc	mg/kg	410[A]	n/a	36	33	41	22%	81	23

See notes on last page.

Table 2
Summary of Soil Analytical Results for Sample Locations
>30 m from Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Sample Location				BH19-5					TH-3
Sample Date				11-Feb-19	11-Feb-19	11-Feb-19		11-Feb-19	13-Aug-18
Sample ID				BH19-5 1.0-1.5	BH19-5 1.5-2.25	QC-02		BH19-5 2.25-3.0	TH-3-4
Sample Depth				1.0 - 1.5 m	1.5 - 2.25 m	1.5 - 2.25 m		2.25 - 3.0 m	1.5 - 2.4 m
Sampling Company				STANTEC	STANTEC	STANTEC		STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX		MAXX	MAXX
Laboratory Work Order				B910274	B910274	B910274		B910274	B867552
Laboratory Sample ID				VF2786	VF2787	VF2789	RPD	VF2788	UB3298
Sample Type	Units	CCME	MOE			Field Duplicate	(%)		
Non-Carcinogenic Polycyclic Aromatic Hydrocarbons									
Acenaphthene	mg/kg	n/v	96^{M}	<0.0050	<0.0050	0.0073	nc	<0.0050	<0.0050
Acenaphthylene	mg/kg	n/v	9.6^{M}	<0.0050	<0.0050	0.0072	nc	<0.0050	<0.0050
Acridine	mg/kg	n/v	n/v	<0.010	<0.010	<0.010	nc	<0.010	<0.010
Anthracene	mg/kg	32^{IKL}	$42{,}000^{M}$	<0.0040	<0.0040	0.019	nc	<0.0040	<0.0040
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	n/v	<0.010	<0.010	<0.010	nc	<0.010	<0.010
Fluoranthene	mg/kg	180^{IKL}	9.6^{M}	0.0094	0.016	0.13	nc	<0.0050	<0.0050
Fluorene	mg/kg	n/v	$5{,}600^{M}$	<0.0050	<0.0050	0.010	nc	<0.0050	<0.0050
Methylnaphthalene, 2-	mg/kg	n/v	560_{s2}^{M}	<0.0050	<0.0050	<0.0050	nc	<0.0050	<0.0050
Naphthalene	mg/kg	22^{J}	$2{,}800^{M}$	<0.0050	<0.0050	0.0069	nc	<0.0050	<0.0050
Perylene	mg/kg	n/v	n/v	<0.0050	<0.0050	0.0090	nc	<0.0050	<0.0050
Phenanthrene	mg/kg	50^{J}	n/v	0.0056	0.012	0.093	nc	<0.0050	<0.0050
Pyrene	mg/kg	100^{IJ}	96^{M}	0.0076	0.014	0.11	nc	<0.0050	<0.0050
Low Molecular Weight PAHs	mg/kg	n/v	n/v	<0.010	0.012	0.14	nc	<0.010	<0.010
High Molecular Weight PAHs	mg/kg	n/v	n/v	0.024	0.043	0.57	**172%**	<0.0050	<0.0050
Total PAH	mg/kg	n/v	n/v	0.030	0.055	0.71	**171%**	<0.010	<0.010
Carcinogenic Polycyclic Aromatic Hydrocarbons									
Benzo(a)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	0.045	nc	<0.0050	<0.0050
Benzo(a)pyrene	mg/kg	72^{IKL}	n/a	<0.0050	<0.0050	0.050	nc	<0.0050	<0.0050
Benzo(b/j)fluoranthene	mg/kg	10^{IJ}	n/a	0.0071	0.0080	0.067	nc	<0.0050	<0.0050
Benzo(c)phenanthrene	mg/kg	n/v	n/a	<0.0050	<0.0050	0.0090	nc	<0.0050	<0.0050
Benzo(e)pyrene	mg/kg	n/v	n/a	<0.0050	<0.0050	0.035	nc	<0.0050	<0.0050
Benzo(g,h,i)perylene	mg/kg	n/v	n/a	<0.0050	<0.0050	0.032	nc	<0.0050	<0.0050
Benzo(k)fluoranthene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	0.024	nc	<0.0050	<0.0050
Chrysene	mg/kg	n/v	n/a	<0.0050	0.0059	0.052	nc	<0.0050	<0.0050
Dibenzo(a,h)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	0.0058	nc	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	mg/kg	10^{IJ}	n/a	<0.0050	<0.0050	0.034	nc	<0.0050	<0.0050
Benzo(a)pyrene Total Potency Equivalents	mg/kg	$5.3_{a,b,c}^{H}$	n/a	<0.0071	<0.0071	0.074	nc	<0.0071	<0.0071
Index of Additive Cancer Risk	none	n/v	n/a	<0.10	<0.10	0.91	nc	<0.10	<0.10

See notes on last page.

Table 2
Summary of Soil Analytical Results for Sample Locations
>30 m from Omand's Creek
Dublin Avenue and Omand's Creek
Remediation Plan

Notes:

CCME	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained soil
B	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained surface soil - Inhalation of Indoor Air Check (slab-on-grade)
C	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained subsoil - Inhalation of Indoor Air Check (slab-on-grade)
D	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained surface soil - Soil Contact Guideline
E	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained sub soil - Soil Contact Guideline
F	Canada Wide Standards for PHC in Soil - Industrial- Fine - Surface soils - Eco Soil Contact (Revised Jan 2008)
G	Canada Wide Standards for PHC in Soil - Industrial- Fine - Surface and Sub-Surface soils- Management Limit (Revised Jan 2008)
H	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 1 - Direct contact)
I	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 1 - Environmental health guidelines based on non-carcinogenic effects of PAHs)
J	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Interim/Provisional Soil Quality Critera, CCME 1991)
K	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Environmental Health)
L	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Soil Contact)
MOE	Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario (MOE, 2011)
M	Soil Components for Table 3 - Full Depth, Non-potable Water Scenario for Industrial/Commercial Land Use, Medium/Fine Textured Soil, Soil Contact S2 Risk
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
n/a	Not applicable.
-	Parameter not analyzed / not available.
**	Criterion applies to F4 but when the chromatogram fails to return to baseline at C50, the F4G analysis must be completed and the greater concentration of F4 or F4G is compared to the criterion.
a,b,c	SQG based on an incremental lifetime cancer risk (ILCR) of 1 in 100,000 (10e-5). B[a]P TPE = Benzo[a]pyrene Total Potency Equivalents, which is the sum of estimated cancer potency relative to B[a]P for all potentially carcinogenic unsubstituted PAHs. The B[a]P TPE for a soil sample is calculated by multiplying the concentration of each PAH in the sample by its B[a]P Potency Equivalence Factor (PEF), given below, and summing the products: Benz[a]anthracene = 0.1, Benzo[a]pyrene = 1, Benzo[b+j+k]fluoranthene = 0.1, Benzo[g,h,i]perylene = 0.01, Chrysene = 0.01, Dibenz[a,h]anthracene =1, Indeno[1,2,3-cd]pyrene = 0.1.
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	The criterion is for methylnaphthalenes, therefore the sum of 1-methylnaphthalene and 2-methylnaphthalene must be calculated for comparison.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
CD	Detection limits raised due to dilution to bring analyte within the calibrated range.
JP	Detection limits raised due to dilution as a result of sample matrix interference.
XY	Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 60%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.

Table 3
Summary of Sediment Analytical Results
Dublin Bridge and Omand's Creek
Remediation Plan

Sample Location			BH19-08		BH9-09		BH19-10	BH19-11	BH19-13	BH19-12	NS-1
Sample Date			13-Feb-19	13-Feb-19	13-Feb-19		13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	11-Sept-18
Sample ID			BH19-8 0-0.2	BH19-9 0-0.2	QC-03		BH19-10 0-0.2	BH19-11 0-0.2	BH19-13 0-0.2	BH19-12 0-0.2	NS-1
Sample Depth			0 - 0.2 m	0 - 0.2 m	0 - 0.2 m		0 - 0.2 m	0 - 0.2 m	0 - 0.2 m	0 - 0.2 m	0.1 - 0.3 m
Sampling Company			STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	MAXX	MAXX		MAXX	MAXX	MAXX	MAXX	MAXX
Laboratory Work Order			B910790	B910790	B910790		B910790	B910790	B910790	B910790	B877446
Laboratory Sample ID			VF5069	VF5065	VF5068	RPD	VF5062	VF5059	VF5053	VF5056	UG8581
Sample Type	Units	CCME			Field Duplicate	(%)					
General Chemistry											
Moisture Content	%	n/v	29	38	42	10%	32	33	47	30	28
Soluble (2:1) pH	S.U.	n/v	-	-	-	-	-	-	-	-	8.60
Physical Properties											
Sieve - #200 (>0.075mm)	%	n/v	-	-	-	-	-	-	16	-	-
Sieve - Pan	%	n/v	-	-	-	-	-	-	84	-	-
Grain Size	%	n/v	-	-	-	-	-	-	FINE	-	-
BTEX and Petroleum Hydrocarbons											
Benzene	mg/kg	n/v	<0.0050	<0.0050	<0.0050	nc	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Toluene	mg/kg	n/v	<0.050	<0.050	<0.050	nc	<0.050	<0.050	<0.050	<0.050	<0.020
Ethylbenzene	mg/kg	n/v	<0.010	<0.010	<0.010	nc	<0.010	<0.010	<0.010	<0.010	<0.010
Xylene, m & p-	mg/kg	n/v	<0.040	<0.040	<0.040	nc	<0.040	<0.040	<0.040	<0.040	<0.040
Xylene, o-	mg/kg	n/v	<0.020	<0.020	<0.020	nc	<0.020	<0.020	<0.020	<0.020	<0.020
Xylenes, Total	mg/kg	n/v	<0.045	<0.045	<0.045	nc	<0.045	<0.045	<0.045	<0.045	<0.045
PHC F1 (C6-C10 range)	mg/kg	n/v	<10	<10	<10	nc	<10	<10	<10	<10	<10
PHC F1 (C6-C10 range) minus BTEX	mg/kg	n/v	<10	<10	<10	nc	<10	<10	<10	<10	<10
PHC F2 (>C10-C16 range)	mg/kg	n/v	<10	<10	16	nc	<10	<10	<10	<10	66
PHC F3 (>C16-C34 range)	mg/kg	n/v	<50	330	300	10%	61	240	560	130	650
PHC F4 (>C34-C50 range)	mg/kg	n/v	<50	180	150	nc	<50	140	280	66	260
Chromatogram to baseline at C50	none	n/v	YES	YES	YES	-	YES	YES	YES	YES	YES
Metals											
Aluminum	mg/kg	n/v	19,000	12,000	12,000	0%	24,000	18,000	16,000	18,000	13,000
Antimony	mg/kg	n/v	0.63	0.72	0.82	nc	<0.50	1.3	1.1	<0.50	1.1
Arsenic	mg/kg	5.9[A] 17[B]	**6.2[A]**	4.9	5.0	2%	5.8	**6.9[A]**	**6.4[A]**	4.8	5.3
Barium	mg/kg	n/v	200	130	200	42%	200	230	150	220	170
Beryllium	mg/kg	n/v	0.89	0.55	0.60	nc	1.0	0.85	0.74	0.68	0.69
Boron	mg/kg	n/v	17	14	24	53%	19	16	15	17	21
Cadmium	mg/kg	0.6[A] 3.5[B]	0.60	0.37	0.36	3%	0.25	**0.68[A]**	**0.65[A]**	0.24	0.45
Chromium	mg/kg	37.3[A] 90[B]	**40[A]**	27	30	11%	**44[A]**	**38[A]**	37	**45[A]**	**42[A]**
Cobalt	mg/kg	n/v	12	8.9	8.6	3%	12	12	10	12	9.9
Copper	mg/kg	35.7[A] 197[B]	26	24	24	0%	26	29	33	**36[A]**	33
Iron	mg/kg	n/v	28,000	22,000	21,000	5%	30,000	26,000	26,000	29,000	21000
Lead	mg/kg	35[A] 91.3[B]	**47[A]**	**79[A]**	**64[A]**	21%	24	**81[A]**	**100[AB]**	**38[A]**	**110[AB]**
Magnesium	mg/kg	n/v	20,000	31,000	27,000	14%	15,000	20,000	19,000	27,000	30,000
Manganese	mg/kg	n/v	440	330	330	0%	430	450	360	450	630
Mercury	mg/kg	0.17[A] 0.486[B]	<0.050	<0.050	0.12	nc	0.080	0.061	0.076	<0.050	0.065
Molybdenum	mg/kg	n/v	0.53	0.80	1.4	nc	0.43	0.67	0.92	0.63	1.2
Nickel	mg/kg	n/v	33	23	24	4%	33	33	30	36	32
Selenium	mg/kg	n/v	<0.50	<0.50	<0.50	nc	<0.50	<0.50	0.57	<0.50	<0.50
Silver	mg/kg	n/v	<0.20	<0.20	<0.20	nc	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium	mg/kg	n/v	0.27	0.18	0.17	nc	0.30	0.26	0.22	0.34	0.19
Tin	mg/kg	n/v	1.8	3.2	6.6	nc	1.4	3.2	3.7	2.3	6.1
Uranium	mg/kg	n/v	1.1	1.2	1.4	15%	0.98	0.97	1.3	1.2	1.5
Vanadium	mg/kg	n/v	62	37	39	5%	74	58	51	56	39
Zinc	mg/kg	123[A] 315[B]	91	120	120	0%	80	**130[A]**	**200[A]**	110	**149[A]**

See notes on last page.

Table 3
Summary of Sediment Analytical Results
Dublin Bridge and Omand's Creek
Remediation Plan

Sample Location			BH19-08	BH9-09			BH19-10	BH19-11	BH19-13	BH19-12	NS-1
Sample Date			13-Feb-19	13-Feb-19	13-Feb-19		13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	11-Sept-18
Sample ID			BH19-8 0-0.2	BH19-9 0-0.2	QC-03		BH19-10 0-0.2	BH19-11 0-0.2	BH19-13 0-0.2	BH19-12 0-0.2	NS-1
Sample Depth			0 - 0.2 m	0 - 0.2 m	0 - 0.2 m		0 - 0.2 m	0 - 0.2 m	0 - 0.2 m	0 - 0.2 m	0.1 - 0.3 m
Sampling Company			STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	MAXX	MAXX		MAXX	MAXX	MAXX	MAXX	MAXX
Laboratory Work Order			B910790	B910790	B910790		B910790	B910790	B910790	B910790	B877446
Laboratory Sample ID			VF5069	VF5065	VF5068	RPD	VF5062	VF5059	VF5053	VF5056	UG8581
Sample Type	Units	CCME			Field Duplicate	(%)					
Non-Carcinogenic Polycyclic Aromatic Hydrocarbons											
Acenaphthene	mg/kg	0.00671[A] 0.0889[B]	<0.0050	**0.014[A]**	**0.013[A]**	nc	<0.0050	**0.042[A]**	**0.018[A]**	<0.0050	**0.074[A]**
Acenaphthylene	mg/kg	0.00587[A] 0.128[B]	<0.0050	<0.0050	<0.0050	nc	<0.0050	**0.015[A]**	**0.010[A]**	<0.0050	**0.023[A]**
Acridine	mg/kg	n/v	<0.010	<0.010	<0.010	nc	<0.010	<0.010	<0.010	<0.010	0.014
Anthracene	mg/kg	0.0469[A] 0.245[B]	0.0081	0.016	0.028	nc	<0.0040	**0.11[A]**	0.046	0.012	**0.19[A]**
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	<0.010	<0.010	<0.010	nc	<0.010	<0.010	<0.010	<0.010	0.014
Fluoranthene	mg/kg	0.111[A] 2.36[B]	0.047	0.094	**0.14[A]**	39%	0.017	**0.50[A]**	**0.31[A]**	0.063	**0.65[A]**
Fluorene	mg/kg	0.0212[A] 0.144[B]	0.0077	0.013	0.015	nc	<0.0050	**0.056[A]**	0.021	0.0087	**0.095[A]**
Methylnaphthalene, 2-	mg/kg	0.0202[A] 0.201[B]	0.015	<0.0050	<0.0050	nc	<0.0050	0.016	0.012	<0.0050	0.018
Naphthalene	mg/kg	0.0346[A] 0.391[B]	<0.0050	<0.0050	<0.0050	nc	<0.0050	0.015	0.016	<0.0050	0.034
Perylene	mg/kg	n/v	<0.0050	0.011	0.016	nc	<0.0050	0.031	0.024	<0.0050	0.045
Phenanthrene	mg/kg	0.0419[A] 0.515[B]	**0.042[A]**	0.036	**0.061[A]**	52%	0.013	**0.38[A]**	**0.20[A]**	0.028	**0.57[AB]**
Pyrene	mg/kg	0.053[A] 0.875[B]	0.039	**0.091[A]**	**0.12[A]**	27%	0.014	**0.39[A]**	**0.25[A]**	**0.055[A]**	**0.52[A]**
Low Molecular Weight PAHs	mg/kg	n/v	0.074	0.080	0.12	40%	0.013	0.64	0.32	0.048	1.0
High Molecular Weight PAHs	mg/kg	n/v	0.19	0.47	0.70	39%	0.050	2.1	1.4	0.29	2.7
Total PAH	mg/kg	n/v	0.27	0.55	0.82	39%	0.063	2.8	1.7	0.34	3.7
Carcinogenic Polycyclic Aromatic Hydrocarbons											
Benzo(a)anthracene	mg/kg	0.0317[A] 0.385[B]	0.020	**0.041[A]**	**0.067[A]**	48%	<0.0050	**0.24[A]**	**0.14[A]**	0.024	**0.32[A]**
Benzo(a)pyrene	mg/kg	0.0319[A] 0.782[B]	0.016	**0.044[A]**	**0.063[A]**	36%	<0.0050	**0.18[A]**	**0.12[A]**	0.028	**0.23[A]**
Benzo(b/j)fluoranthene	mg/kg	n/v	0.024	0.062	0.094	41%	0.011	0.25	0.17	0.042	0.29
Benzo(c)phenanthrene	mg/kg	n/v	<0.0050	<0.0050	0.011	nc	<0.0050	0.040	0.021 XY	<0.0050	0.049
Benzo(e)pyrene	mg/kg	n/v	0.011	0.054	0.052	4%	<0.0050	0.12	0.087	0.029	0.17
Benzo(g,h,i)perylene	mg/kg	n/v	0.0079	0.046	0.046	0%	<0.0050	0.080	0.072	0.024	0.11
Benzo(k)fluoranthene	mg/kg	n/v	0.0088	0.020	0.033	nc	<0.0050	0.093	0.060	0.014	0.11
Chrysene	mg/kg	0.0571[A] 0.862[B]	0.021	0.035	**0.064[A]**	59%	0.0077	**0.22[A]**	**0.14[A]**	0.023	**0.25[A]**
Dibenzo(a,h)anthracene	mg/kg	0.00622[A] 0.135[B]	<0.0050	**0.0079[A]**	**0.010[A]**	nc	<0.0050	**0.025[A]**	**0.017[A]**	<0.0050	**0.031[A]**
Indeno(1,2,3-cd)pyrene	mg/kg	n/v	0.0085	0.032	0.044	32%	<0.0050	0.096	0.076	0.020	012
Benzo(a)pyrene Total Potency Equivalents	mg/kg	n/v	0.025	0.069	0.099	36%	<0.0071	0.28	0.18	0.041	0.35
Index of Additive Cancer Risk	none	n/v	0.33	0.83	1.3	44%	0.12	3.6	2.4	0.53	4.4

See notes on last page.

Table 3
Summary of Sediment Analytical Results
Dublin Bridge and Omand's Creek
Remediation Plan

Sample Location			BH19-14		BH19-15			BH19-16		SS-1
Sample Date			13-Feb-19	13-Feb-19	13-Feb-19		13-Feb-19	13-Feb-19	13-Feb-19	3-Aug-18
Sample ID			BH19-14 0-0.2	BH19-15 0-0.2	QC-04		BH19-15 0-0.2 Lab-Dup	BH19-16 0-0.2	BH19-16 0-0.2 Lab-Dup	SS-1
Sample Depth			0 - 0.2 m	0 - 0.2 m	0 - 0.2 m		0 - 0.2 m	0 - 0.2 m	0 - 0.2 m	0.1 - 0.3 m
Sampling Company			STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	MAXX	MAXX		MAXX	MAXX	MAXX	MAXX
Laboratory Work Order			B910790	B910790	B910790		B910790	B910790	B910790	B865167
Laboratory Sample ID			VF5050	VF5046	VF5049	RPD	VF5046	VF5043	VF5043	TZ9434
Sample Type	Units	CCME			Field Duplicate	(%)	Lab Replicate		Lab Replicate	
General Chemistry										
Moisture Content	%	n/v	33	37	34	8%^	37	42	-	18
Soluble (2:1) pH	S.U.	n/v	-	-	-	-	-	-	-	8.60
Physical Properties										
Sieve - #200 (>0.075mm)	%	n/v	-	-	-	-	-	-	-	-
Sieve - Pan	%	n/v	-	-	-	-	-	-	-	-
Grain Size	%	n/v	-	-	-	-	-	-	-	-
BTEX and Petroleum Hydrocarbons										
Benzene	mg/kg	n/v	<0.0050	<0.0050	<0.0050	nc	-	<0.0050	<0.0050	<0.0050
Toluene	mg/kg	n/v	<0.050	<0.050	<0.050	nc	-	<0.050	<0.050	<0.020
Ethylbenzene	mg/kg	n/v	<0.010	<0.010	<0.010	nc	-	<0.010	<0.010	<0.010
Xylene, m & p-	mg/kg	n/v	<0.040	<0.040	<0.040	nc	-	<0.040	<0.040	<0.040
Xylene, o-	mg/kg	n/v	<0.020	<0.020	<0.020	nc	-	<0.020	<0.020	<0.020
Xylenes, Total	mg/kg	n/v	<0.045	<0.045	<0.045	nc	-	<0.045	-	<0.045
PHC F1 (C6-C10 range)	mg/kg	n/v	<10	<10	<10	nc	-	<10	<10	<10
PHC F1 (C6-C10 range) minus BTEX	mg/kg	n/v	<10	<10	<10	nc	-	<10	-	<10
PHC F2 (>C10-C16 range)	mg/kg	n/v	<10	21	17	21%	-	<10	<10	<10
PHC F3 (>C16-C34 range)	mg/kg	n/v	360	410	320	26%	-	520	520	<50
PHC F4 (>C34-C50 range)	mg/kg	n/v	210	170	120	34%	-	280	280	<50
Chromatogram to baseline at C50	none	n/v	YES	YES	YES	-	-	YES	YES	YES
Metals										
Aluminum	mg/kg	n/v	9,600	10,000	13,000	26%	-	12,000	-	9,300
Antimony	mg/kg	n/v	1.2	0.74	0.80	8%	-	0.87	-	<0.50
Arsenic	mg/kg	5.9^{A} 17^{B}	4.9	4.3	5.7	28%	-	5.7	-	3.3
Barium	mg/kg	n/v	120	110	140	24%	-	130	-	83
Beryllium	mg/kg	n/v	0.42	0.44	0.57	nc	-	0.55	-	<0.40
Boron	mg/kg	n/v	15	16	18	12%	-	17	-	16
Cadmium	mg/kg	0.6^{A} 3.5^{B}	0.49	0.35	0.44	nc	-	0.48	-	0.077
Chromium	mg/kg	37.3^{A} 90^{B}	29	29	31	7%	-	35	-	26
Cobalt	mg/kg	n/v	6.5	6.8	8.6	23%	-	7.7	-	6.3
Copper	mg/kg	35.7^{A} 197^{B}	35	29	27	7%	-	29	-	14
Iron	mg/kg	n/v	18,000	19,000	26,000	31%	-	21,000	-	14,000
Lead	mg/kg	35^{A} 91.3^{B}	**150^{AB}**	**96^{AB}**	**66^{A}**	37%	-	**75^{A}**	-	5.8
Magnesium	mg/kg	n/v	33,000	38,000	29,000	27%	-	23,000	-	46,000
Manganese	mg/kg	n/v	340	310	330	6%	-	280	-	270
Mercury	mg/kg	0.17^{A} 0.486^{B}	<0.050	0.066	0.063	nc	-	0.074	-	0.068
Molybdenum	mg/kg	n/v	0.75	0.89	0.94	nc	-	0.83	-	<0.40
Nickel	mg/kg	n/v	19	20	26	26%	-	26	-	19
Selenium	mg/kg	n/v	<0.50	<0.50	<0.50	nc	-	<0.50	-	<0.50
Silver	mg/kg	n/v	<0.20	<0.20	<0.20	nc	-	<0.20	-	<0.20
Thallium	mg/kg	n/v	0.15	0.14	0.19	nc	-	0.17	-	0.13
Tin	mg/kg	n/v	3.5	2.8	2.2	nc	-	3.3	-	<1.0
Uranium	mg/kg	n/v	1.1	1.1	1.3	17%	-	1.3	-	0.66
Vanadium	mg/kg	n/v	33	35	43	21%	-	40	-	33
Zinc	mg/kg	123^{A} 315^{B}	**180^{A}**	86	110	24%	-	**170^{A}**	-	31

See notes on last page.

Table 3
Summary of Sediment Analytical Results
Dublin Bridge and Omand's Creek
Remediation Plan

Sample Location			BH19-14		BH19-15			BH19-16		SS-1
Sample Date			13-Feb-19	13-Feb-19	13-Feb-19		13-Feb-19	13-Feb-19	13-Feb-19	3-Aug-18
Sample ID			BH19-14 0-0.2	BH19-15 0-0.2	QC-04		BH19-15 0-0.2 Lab-Dup	BH19-16 0-0.2	BH19-16 0-0.2 Lab-Dup	SS-1
Sample Depth			0 - 0.2 m	0 - 0.2 m	0 - 0.2 m		0 - 0.2 m	0 - 0.2 m	0 - 0.2 m	0.1 - 0.3 m
Sampling Company			STANTEC	STANTEC	STANTEC		STANTEC	STANTEC	STANTEC	STANTEC
Laboratory			MAXX	MAXX	MAXX		MAXX	MAXX	MAXX	MAXX
Laboratory Work Order			B910790	B910790	B910790		B910790	B910790	B910790	B865167
Laboratory Sample ID			VF5050	VF5046	VF5049	RPD	VF5046	VF5043	VF5043	TZ9434
Sample Type	Units	CCME			Field Duplicate	(%)	Lab Replicate		Lab Replicate	
Non-Carcinogenic Polycyclic Aromatic Hydrocarbons										
Acenaphthene	mg/kg	0.00671[A] 0.0889[B]	**0.016[A]**	**0.032[A]**	**0.013[A]**	nc	-	**0.028[A]**	-	<0.0050
Acenaphthylene	mg/kg	0.00587[A] 0.128[B]	**0.012[A]**	**0.011[A]**	**0.010[A]**	nc	-	**0.058[A]**	-	<0.0050
Acridine	mg/kg	n/v	<0.010	<0.010	<0.010	nc	-	<0.010	-	<0.010
Anthracene	mg/kg	0.0469[A] 0.245[B]	**0.047[A]**	**0.082[A]**	0.037	nc	-	**0.16[A]**	-	<0.0040
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	<0.010	<0.010	<0.010	nc	-	<0.010	-	<0.010
Fluoranthene	mg/kg	0.111[A] 2.36[B]	**0.28[A]**	**0.31[A]**	**0.16[A]**	**64%**	-	**1.4[A]**	-	<0.0050
Fluorene	mg/kg	0.0212[A] 0.144[B]	0.021	**0.044[A]**	0.016	nc	-	**0.043[A]**	-	<0.0050
Methylnaphthalene, 2-	mg/kg	0.0202[A] 0.201[B]	0.010	0.013	0.0074	nc	-	0.017	-	<0.0050
Naphthalene	mg/kg	0.0346[A] 0.391[B]	0.011	0.022	0.0073	nc	-	**0.037[A]**	-	<0.0050
Perylene	mg/kg	n/v	0.024	0.022	0.012	nc	-	0.096	-	<0.0050
Phenanthrene	mg/kg	0.0419[A] 0.515[B]	**0.17[A]**	**0.26[A]**	**0.099[A]**	**90%**	-	**0.32[A]**	-	<0.0050
Pyrene	mg/kg	0.053[A] 0.875[B]	**0.22[A]**	**0.26[A]**	**0.14[A]**	60%	-	**1.0[A]**	-	<0.0050
Low Molecular Weight PAHs	mg/kg	n/v	0.29	0.47	0.19	**85%**	-	0.67	-	<0.010
High Molecular Weight PAHs	mg/kg	n/v	1.3	1.3	0.71	59%	-	5.7	-	<0.0050
Total PAH	mg/kg	n/v	1.6	1.8	0.90	**67%**	-	6.4	-	<0.010
Carcinogenic Polycyclic Aromatic Hydrocarbons										
Benzo(a)anthracene	mg/kg	0.0317[A] 0.385[B]	**0.13[A]**	**0.14[A]**	**0.068[A]**	**69%**	-	**0.71[AB]**	-	<0.0050
Benzo(a)pyrene	mg/kg	0.0319[A] 0.782[B]	**0.12[A]**	**0.11[A]**	**0.060[A]**	58%	-	**0.51[A]**	-	<0.0050
Benzo(b/j)fluoranthene	mg/kg	n/v	0.17	0.15	0.089	51%	-	0.67	-	<0.0050
Benzo(c)phenanthrene	mg/kg	n/v	0.020 XY	0.022	0.012 XY	nc	-	0.10	-	<0.0050
Benzo(e)pyrene	mg/kg	n/v	0.089	0.079	0.050	45%	-	0.30	-	<0.0050
Benzo(g,h,i)perylene	mg/kg	n/v	0.080	0.066	0.039	51%	-	0.23	-	<0.0050
Benzo(k)fluoranthene	mg/kg	n/v	0.060	0.054	0.032	51%	-	0.26	-	<0.0050
Chrysene	mg/kg	0.0571[A] 0.862[B]	**0.13[A]**	**0.12[A]**	**0.068[A]**	55%	-	**0.52[A]**	-	<0.0050
Dibenzo(a,h)anthracene	mg/kg	0.00622[A] 0.135[B]	**0.017[A]**	**0.015[A]**	**0.0083[A]**	nc	-	**0.069[A]**	-	<0.0050
Indeno(1,2,3-cd)pyrene	mg/kg	n/v	0.083	0.063	0.037	52%	-	0.28	-	<0.0050
Benzo(a)pyrene Total Potency Equivalents	mg/kg	n/v	0.18	0.17	0.091	**61%**	-	0.77	-	<0.0071
Index of Additive Cancer Risk	none	n/v	2.3	2.1	1.2	55%	-	10	-	<0.10

Notes:

CCME	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Sediment Quality Guidelines for the Protection of Aquatic Life, Interim Fre
B	Canadian Environmental Quality Guidelines, Sediment Quality Guidelines for the Protection of Aquatic Life, Freshwate
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
-	Parameter not analyzed / not available.
CD	Detection limits raised due to dilution to bring analyte within the calibrated range.
XY	Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 60%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable

Table 4
Summary of Soil Analytical Results for Sample Locations
Within Omand's Creek >0.30 m Below Ground Surface
Dublin Bridge and Omand's Creek
Remediation Plan

Sample Location				BH19-08	BH19-08	BH9-09	BH19-10	BH19-11	BH19-13	BH19-12		TH18-02	
Sample Date				13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	3-Aug-18	3-Aug-18
Sample ID				BH19-8 0.8-1.0	BH19-8 0.8-1.0 Lab-Dup	BH19-9 0.8-1.0	BH19-10 0.8-1.0	BH19-11 0.8-1.0	BH19-13 0.8-1.0	BH19-12 0.8-1.0	BH19-12 0.8-1.0 Lab-Dup	TH18-02-2	TH18-02-3
Sample Depth				0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.6 - 1.2 m	1.2 - 1.5 m
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX
Laboratory Work Order				B910790	B910790	B910790	B910790	B910790	B910790	B910790	B910790	B865167	B865167
Laboratory Sample ID				VF5071	VF5071	VF5067	VF5064	VF5061	VF5055	VF5058	VF5058	TZ9426	TZ9427
Sample Type	Units	CCME	MOE		Lab Replicate						Lab Replicate		
General Chemistry													
Moisture Content	%	n/v	n/a	18	-	38	20	19	29	38	-	19	30
Soluble (2:1) pH	S.U.	6 - 8[A]	n/a	-	-	-	-	-	-	-	-	**8.31[A]**	**7.80[A]**
Physical Properties													
Particle Size (<0.075mm)	%	n/v	n/a	-	-	-	-	-	4.5	-	-	91.02	97.80
Sieve - #200 (>0.075mm)	%	n/v	n/a	-	-	-	-	-	95	-	-	8.98	2.20
Grain Size	none	n/v	n/a	-	-	-	-	-	FINE	-	-	FINE	FINE
BTEX and Petroleum Hydrocarbons													
Benzene	mg/kg	2.8[B] 2.9[C]	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	<0.0050	<0.0050
Toluene	mg/kg	330[D] 660[E]	n/a	<0.050	-	<0.050	<0.050	<0.050	<0.050	<0.050	-	<0.020	<0.020
Ethylbenzene	mg/kg	430[D] 860[E]	n/a	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	-	<0.010	<0.010
Xylene, m & p-	mg/kg	n/v	n/a	<0.040	-	<0.040	<0.040	<0.040	<0.040	<0.040	-	<0.040	<0.040
Xylene, o-	mg/kg	n/v	n/a	<0.020	-	<0.020	<0.020	<0.020	<0.020	<0.020	-	<0.020	<0.020
Xylenes, Total	mg/kg	230[D] 460[E]	n/a	<0.045	-	<0.045	<0.045	<0.045	<0.045	<0.045	-	<0.045	<0.045
PHC F1 (C6-C10 range)	mg/kg	[FG] [s7]	n/a	<10	-	<10	<10	<10	<10	<10	-	<10	<10
PHC F1 (C6-C10 range) minus BTEX	mg/kg	320[F] 800[G]	n/a	<10	-	<10	<10	<10	<10	<10	-	<10	<10
PHC F2 (>C10-C16 range)	mg/kg	260[F] 1000[G]	n/a	<10	-	<10	<10	<10	<10	<10	-	<10	<10
PHC F3 (>C16-C34 range)	mg/kg	2,500[F] 5,000[G]	n/a	<50	-	90	<50	<50	<50	<50	-	<50	<50
PHC F4 (>C34-C50 range)	mg/kg	6,600[F] 10,000[G]	n/a	<50	-	<50	<50	<50	<50	<50	-	<50	<50
PHC F4 (>C34) Gravimetric	mg/kg	6,600..[F] 10,000..[G]	n/a										
Chromatogram to baseline at C50	none	n/v	n/a	YES	-	YES	YES	YES	YES	YES	-	YES	YES
Metals													
Aluminum	mg/kg	n/v	n/a	5,800	6,000	20,000	6,500	4,000	14,000	25,000	-	8,600	22,000
Antimony	mg/kg	40[A]	n/a	<0.50	<0.50	0.51	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50
Arsenic	mg/kg	12[A]	n/a	2.4	2.4	7.9	2.7	1.8	5.6	6.9	-	2.8	5.6
Barium	mg/kg	2,000[A]	n/a	52	54	220	57	31	130	300	-	77	240
Beryllium	mg/kg	8[A]	n/a	<0.40	<0.40	1.1	<0.40	<0.40	0.58	1.2	-	<0.40	1.0
Boron	mg/kg	n/v	n/a	13	12	19	12	11	17	24	-	11	18
Cadmium	mg/kg	22[A]	n/a	0.12	0.12	0.24	0.11	0.072	0.21	0.17	-	0.13	0.14
Chromium	mg/kg	87[A]	n/a	15	15	47	16	11	33	61	-	24	62
Cobalt	mg/kg	300[A]	n/a	3.7	3.7	15	4.2	2.7	8.3	18	-	6.1	17
Copper	mg/kg	91[A]	n/a	8.1	8.4	33	9.9	5.8	22	37	-	15	36
Iron	mg/kg	n/v	n/a	10,000	10,000	32,000	11,000	7,700	22,000	38,000	-	14,000	32,000
Lead	mg/kg	600[A]	n/a	6.6	7.0	16	4.7	3.2	22	16	-	5.9	13
Magnesium	mg/kg	n/v	n/a	59,000 CD	62,000	13,000	48,000	56,000 CD	41,000	15,000	-	45,000	18,000
Manganese	mg/kg	n/v	n/a	220	220	850	260	180	370	480	-	300	510
Mercury	mg/kg	50[A]	n/a	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	-	0.059	0.099
Molybdenum	mg/kg	40[A]	n/a	<0.40	<0.40	1.9	<0.40	<0.40	0.66	1.1	-	<0.40	0.84
Nickel	mg/kg	89[A]	n/a	10	11	46	13	7.5	25	49	-	18	51
Selenium	mg/kg	2.9[A]	n/a	<0.50	<0.50	0.65	<0.50	<0.50	<0.50	<0.50	-	<0.50	<0.50
Silver	mg/kg	40[A]	n/a	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	-	<0.20	<0.20
Thallium	mg/kg	1[A]	n/a	<0.10	<0.10	0.30	0.12	<0.10	0.24	0.42	-	0.15	0.38
Tin	mg/kg	300[A]	n/a	2.5	<1.0	1.6	<1.0	<1.0	<1.0	1.6	-	<1.0	1.2
Uranium	mg/kg	300[A]	n/a	0.60	0.60	1.4	0.61	0.49	1.1	1.4	-	0.75	1.3
Vanadium	mg/kg	130[A]	n/a	21	21	74	24	15	51	89	-	31	82
Zinc	mg/kg	410[A]	n/a	18	20	85	21	13	61	98	-	32	89

See notes on last page.

Table 4
Summary of Soil Analytical Results for Sample Locations
Within Omand's Creek >0.30 m Below Ground Surface
Dublin Bridge and Omand's Creek
Remediation Plan

Sample Location				BH19-08	BH19-08	BH9-09	BH19-10	BH19-11	BH19-13	BH19-12		TH18-02	
Sample Date				13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	13-Feb-19	3-Aug-18	3-Aug-18
Sample ID				BH19-8 0.8-1.0	BH19-8 0.8-1.0 Lab-Dup	BH19-9 0.8-1.0	BH19-10 0.8-1.0	BH19-11 0.8-1.0	BH19-13 0.8-1.0	BH19-12 0.8-1.0	BH19-12 0.8-1.0 Lab-Dup	TH18-02-2	TH18-02-3
Sample Depth				0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.6 - 1.2 m	1.2 - 1.5 m
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX	MAXX
Laboratory Work Order				B910790	B910790	B910790	B910790	B910790	B910790	B910790	B910790	B865167	B865167
Laboratory Sample ID				VF5071	VF5071	VF5067	VF5064	VF5061	VF5055	VF5058	VF5058	TZ9426	TZ9427
Sample Type	Units	CCME	MOE		Lab Replicate						Lab Replicate		
Non-Carcinogenic Polycyclic Aromatic Hydrocarbons													
Acenaphthene	mg/kg	0.28^{L}	96°	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acenaphthylene	mg/kg	320^{L}	9.6^{O}	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Acridine	mg/kg	n/v	n/v	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Anthracene	mg/kg	32^{IKN}	$42{,}000^{O}$	<0.0040	-	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	n/v	<0.010	-	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Fluoranthene	mg/kg	180^{IKN}	9.6^{O}	<0.0050	-	<0.0050	<0.0050	<0.0050	0.022	<0.0050	<0.0050	<0.0050	<0.0050
Fluorene	mg/kg	0.25^{L}	$5{,}600^{O}$	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Methylnaphthalene, 2-	mg/kg	n/v	$560_{<2}{}^{O}$	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Naphthalene	mg/kg	$0.013_{e}{}^{IL}$ 22^{J}	$2{,}800^{O}$	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Perylene	mg/kg	n/v	n/v	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Phenanthrene	mg/kg	$0.046_{e}{}^{IL}$ 50^{J}	n/v	<0.0050	-	<0.0050	<0.0050	<0.0050	0.020	<0.0050	<0.0050	<0.0050	<0.0050
Pyrene	mg/kg	100^{IJ}	96°	<0.0050	-	<0.0050	<0.0050	<0.0050	0.017	<0.0050	<0.0050	<0.0050	<0.0050
Low Molecular Weight PAHs	mg/kg	n/v	n/v	<0.010	-	<0.010	<0.010	<0.010	0.020	<0.010	-	<0.010	<0.010
High Molecular Weight PAHs	mg/kg	n/v	n/v	<0.0050	-	<0.0050	<0.0050	<0.0050	0.074	<0.0050	-	<0.0050	<0.0050
Total PAH	mg/kg	n/v	n/v	<0.010	-	<0.010	<0.010	<0.010	0.094	<0.010	-	<0.010	<0.010
Carcinogenic Polycyclic Aromatic Hydrocarbons													
Benzo(a)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	0.0080	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)pyrene	mg/kg	72^{IKN} $8{,}800^{L}$	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	0.0071	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(b/j)fluoranthene	mg/kg	10^{IJ}	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	0.011	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(c)phenanthrene	mg/kg	n/v	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(e)pyrene	mg/kg	n/v	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(g,h,i)perylene	mg/kg	n/v	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(k)fluoranthene	mg/kg	10^{IJ}	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Chrysene	mg/kg	n/v	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	0.0088	<0.0050	<0.0050	<0.0050	<0.0050
Dibenzo(a,h)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Indeno(1,2,3-cd)pyrene	mg/kg	10^{IJ}	n/a	<0.0050	-	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Benzo(a)pyrene Total Potency Equivalents	mg/kg	$5.3_{a,b,Ch}$	n/a	<0.0071	-	<0.0071	<0.0071	<0.0071	0.012	<0.0071	-	<0.0071	<0.0071
Index of Additive Cancer Risk	none	n/v	n/a	<0.10	-	<0.10	<0.10	<0.10	0.14	<0.10	-	<0.10	<0.10

See notes on last page.

Table 4
Summary of Soil Analytical Results for Sample Locations
Within Omand's Creek >0.30 m Below Ground Surface
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Sample Location				BH19-14	BH19-15	BH19-16	TH18-01				
Sample Date				13-Feb-19	13-Feb-19	13-Feb-19	3-Aug-18	3-Aug-18		3-Aug-18	3-Aug-18
Sample ID				BH19-14 0.8-1.0	BH19-15 0.8-1.0	BH19-16 0.8-1.0	TH18-01-3	QC-01		TH18-01-4	TH18-01-4 Lab-Dup
Sample Depth				0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.5 m	0.8 - 1.5 m		1.9 - 2.6 m	1.9 - 2.6 m
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	MAXX		MAXX	MAXX
Laboratory Work Order				B910790	B910790	B910790	B865167	B865167		B865167	B865167
Laboratory Sample ID				VF5052	VF5048	VF5045	TZ9437	TZ9444	RPD	TZ9438	TZ9438
Sample Type	Units	CCME	MOE					Field Duplicate	(%)		Lab Replicate
General Chemistry											
Moisture Content	%	n/v	n/a	17	30	18	23	21	9%	16	-
Soluble (2:1) pH	S.U.	6 - 8[A]	n/a	-	-	-	7.93	**8.24[A]**	nc	**8.79[A]**	**8.76[A]**
Physical Properties											
Particle Size (<0.075mm)	%	n/v	n/a	-	-	-	-	-	-	88.38	-
Sieve - #200 (>0.075mm)	%	n/v	n/a	-	-	-	-	-	-	11.62	-
Grain Size	none	n/v	n/a	-	-	-	-	-	-	FINE	-
BTEX and Petroleum Hydrocarbons											
Benzene	mg/kg	2.8[B] 2.9[C]	n/a	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Toluene	mg/kg	330[D] 660[E]	n/a	<0.050	<0.050	<0.050	<0.020	<0.020	nc	<0.020	-
Ethylbenzene	mg/kg	430[D] 860[E]	n/a	<0.010	<0.010	<0.010	<0.010	<0.010	nc	<0.010	-
Xylene, m & p-	mg/kg	n/v	n/a	<0.040	<0.040	<0.040	<0.040	<0.040	nc	<0.040	-
Xylene, o-	mg/kg	n/v	n/a	<0.020	<0.020	<0.020	<0.020	<0.020	nc	<0.020	-
Xylenes, Total	mg/kg	230[D] 460[E]	n/a	<0.045	<0.045	<0.045	<0.045	<0.045	nc	<0.045	-
PHC F1 (C6-C10 range)	mg/kg	[FG] [s7]	n/a	<10	<10	<10	<10	<10	nc	<10	-
PHC F1 (C6-C10 range) minus BTEX	mg/kg	320[F] 800[G]	n/a	<10	<10	<10	<10	<10	nc	<10	-
PHC F2 (>C10-C16 range)	mg/kg	260[F] 1000[G]	n/a	<10	<10	<10	<10	<10	nc	<10	-
PHC F3 (>C16-C34 range)	mg/kg	2,500[F] 5,000[G]	n/a	<50	77	<50	<50	<50	nc	<50	-
PHC F4 (>C34-C50 range)	mg/kg	6,600[F] 10,000[G]	n/a	<50	79	<50	<50	<50	nc	<50	-
PHC F4 (>C34) Gravimetric	mg/kg	6,600..[F] 10,000..[G]	n/a			-				-	-
Chromatogram to baseline at C50	none	n/v	n/a	YES	YES	YES	YES	YES	nc	YES	-
Metals											
Aluminum	mg/kg	n/v	n/a	6,600	13,000	4,100	23,000	23,000	0%	4,600	4,400
Antimony	mg/kg	40[A]	n/a	<0.50	<0.50	<0.50	<0.50	<0.50	nc	<0.50	<0.50
Arsenic	mg/kg	12[A]	n/a	2.4	4.2	2.2	5.9	5.5	7%	2.6	2.4
Barium	mg/kg	2,000[A]	n/a	51	130	33	250	310	21%	35	33
Beryllium	mg/kg	8[A]	n/a	<0.40	0.49	<0.40	1.1	1.1	nc	<0.40	<0.40
Boron	mg/kg	n/v	n/a	12	14	12	11	10	10%	11	11
Cadmium	mg/kg	22[A]	n/a	0.14	0.19	0.094	0.19	0.18	nc	0.069	0.063
Chromium	mg/kg	87[A]	n/a	16	33	12	55	51	8%	14	13
Cobalt	mg/kg	300[A]	n/a	4.1	8.7	2.8	12	15	22%	3.2	3.0
Copper	mg/kg	91[A]	n/a	11	21	6.8	28	26	7%	7.2	6.9
Iron	mg/kg	n/v	n/a	12,000	21,000	8,600	28,000	30,000	7%	7,900	7,500
Lead	mg/kg	600[A]	n/a	6.8	14	4.6	14	14	0%	3.9	3.6
Magnesium	mg/kg	n/v	n/a	46,000	36,000	58,000 CD	9,300	9,400	1%	53,000	50,000
Manganese	mg/kg	n/v	n/a	220	320	180	440	880	**67%**	200	190
Mercury	mg/kg	50[A]	n/a	0.069	0.050	<0.050	0.11	0.063	nc	<0.050	<0.050
Molybdenum	mg/kg	40[A]	n/a	<0.40	0.45	<0.40	<0.40	<0.40	nc	<0.40	<0.40
Nickel	mg/kg	89[A]	n/a	12	26	8.1	37	40	8%	9.6	9.1
Selenium	mg/kg	2.9[A]	n/a	<0.50	<0.50	<0.50	<0.50	<0.50	nc	<0.50	<0.50
Silver	mg/kg	40[A]	n/a	<0.20	<0.20	<0.20	<0.20	<0.20	nc	<0.20	<0.20
Thallium	mg/kg	1[A]	n/a	0.12	0.24	<0.10	0.35	0.32	nc	<0.10	<0.10
Tin	mg/kg	300[A]	n/a	<1.0	1.1	<1.0	1.4	1.1	nc	<1.0	<1.0
Uranium	mg/kg	300[A]	n/a	0.65	1.4	0.65	1.5	1.6	6%	0.66	0.63
Vanadium	mg/kg	130[A]	n/a	23	43	17	88	76	15%	20	19
Zinc	mg/kg	410[A]	n/a	25	63	16	91	85	7%	14	13

See notes on last page.

Table 4
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Sample Location				BH19-14	BH19-15	BH19-16	TH18-01				
Sample Date				13-Feb-19	13-Feb-19	13-Feb-19	3-Aug-18	3-Aug-18		3-Aug-18	3-Aug-18
Sample ID				BH19-14 0.8-1.0	BH19-15 0.8-1.0	BH19-16 0.8-1.0	TH18-01-3	QC-01		TH18-01-4	TH18-01-4 Lab-Dup
Sample Depth				0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.0 m	0.8 - 1.5 m	0.8 - 1.5 m		1.9 - 2.6 m	1.9 - 2.6 m
Sampling Company				STANTEC	STANTEC	STANTEC	STANTEC	STANTEC		STANTEC	STANTEC
Laboratory				MAXX	MAXX	MAXX	MAXX	MAXX		MAXX	MAXX
Laboratory Work Order				B910790	B910790	B910790	B865167	B865167		B865167	B865167
Laboratory Sample ID				VF5052	VF5048	VF5045	TZ9437	TZ9444	RPD	TZ9438	TZ9438
Sample Type	Units	CCME	MOE					Field Duplicate	(%)		Lab Replicate
Non-Carcinogenic Polycyclic Aromatic Hydrocarbons											
Acenaphthene	mg/kg	0.28^{L}	96°	<0.0050	0.0085	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Acenaphthylene	mg/kg	320^{L}	9.6^{O}	<0.0050	0.053	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Acridine	mg/kg	n/v	n/v	<0.010	<0.010	<0.010	<0.010	<0.010	nc	<0.010	-
Anthracene	mg/kg	32^{IKN}	$42{,}000^{O}$	<0.0040	0.12	<0.0040	<0.0040	<0.0040	nc	<0.0040	-
Benzo(b)pyridine (Quinoline)	mg/kg	n/v	n/v	<0.010	<0.010	<0.010	<0.010	<0.010	nc	<0.010	-
Fluoranthene	mg/kg	180^{IKN}	9.6^{O}	<0.0050	1.5	<0.0050	0.0085	0.0065	nc	<0.0050	-
Fluorene	mg/kg	0.25^{L}	$5{,}600^{O}$	<0.0050	0.019	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Methylnaphthalene, 2-	mg/kg	n/v	$560_{<2}{}^{O}$	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Naphthalene	mg/kg	$0.013_{e}{}^{IL}$ 22^{J}	$2{,}800^{O}$	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Perylene	mg/kg	n/v	n/v	<0.0050	0.078	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Phenanthrene	mg/kg	$0.046_{e}{}^{IL}$ 50^{J}	n/v	<0.0050	**0.20^{IL}**	<0.0050	0.0066	<0.0050	nc	<0.0050	-
Pyrene	mg/kg	100^{IJ}	96°	<0.0050	1.1	<0.0050	0.0072	<0.0050	nc	<0.0050	-
Low Molecular Weight PAHs	mg/kg	n/v	n/v	<0.010	0.40	<0.010	<0.010	<0.010	nc	<0.010	-
High Molecular Weight PAHs	mg/kg	n/v	n/v	<0.0050	5.7	<0.0050	0.023	0.0065	nc	<0.0050	-
Total PAH	mg/kg	n/v	n/v	<0.010	6.1	<0.010	0.029	<0.010	nc	<0.010	-
Carcinogenic Polycyclic Aromatic Hydrocarbons											
Benzo(a)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	0.73	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Benzo(a)pyrene	mg/kg	72^{IKN} $8{,}800^{L}$	n/a	<0.0050	0.41	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Benzo(b/j)fluoranthene	mg/kg	10^{IJ}	n/a	<0.0050	0.64	<0.0050	0.0070	<0.0050	nc	<0.0050	-
Benzo(c)phenanthrene	mg/kg	n/v	n/a	<0.0050	0.11	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Benzo(e)pyrene	mg/kg	n/v	n/a	<0.0050	0.27	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Benzo(g,h,i)perylene	mg/kg	n/v	n/a	<0.0050	0.19	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Benzo(k)fluoranthene	mg/kg	10^{IJ}	n/a	<0.0050	0.25	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Chrysene	mg/kg	n/v	n/a	<0.0050	0.49	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Dibenzo(a,h)anthracene	mg/kg	10^{IJ}	n/a	<0.0050	0.066	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Indeno(1,2,3-cd)pyrene	mg/kg	10^{IJ}	n/a	<0.0050	0.24	<0.0050	<0.0050	<0.0050	nc	<0.0050	-
Benzo(a)pyrene Total Potency Equivalents	mg/kg	$5.3_{a,b,Ch}$	n/a	<0.0071	0.67	<0.0071	<0.0071	<0.0071	nc	<0.0071	-
Index of Additive Cancer Risk	none	n/v	n/a	<0.10	9.5	<0.10	<0.10	<0.10	nc	<0.10	-

See notes on last page.

Table 4
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Within Omand's Creek >0.30 m Below Ground Surface
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Notes:

CCME	Canadian Council of Ministers of the Environment
A	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained soil
B	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained surface soil - Inhalation of Indoor Air Check (slab-on-grade)
C	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained subsoil - Inhalation of Indoor Air Check (slab-on-grade)
D	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained surface soil - Soil Contact Guideline
E	Canadian Environmental Quality Guidelines, Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health, on-line summary table, for industrial land use and fine grained sub soil - Soil Contact Guideline
F	Canada Wide Standards for PHC in Soil - Industrial- Fine - Surface soils - Eco Soil Contact (Revised Jan 2008)
G	Canada Wide Standards for PHC in Soil - Industrial- Fine - Surface and Sub-Surface soils- Management Limit (Revised Jan 2008)
H	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 1 - Direct contact)
I	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 1 - Environmental health guidelines based on non-carcinogenic effects of PAHs)
J	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Interim/Provisional Soil Quality Critera, CCME 1991)
K	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Environmental Health)
L	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Protection of freshwater life)
M	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Soil and food ingestion)
N	Canadian Soil Quality Guideline for the Protection of Environmental and Human Health, PAH, 2008. revised 2010, for an Industrial land use (Table 2 - Soil Quality Guideline for Soil Contact)
MOE	Rationale for the Development of Soil and Ground Water Standards for Use at Contaminated Sites in Ontario (MOE, 2011)
O	Soil Components for Table 3 - Full Depth, Non-potable Water Scenario for Industrial/Commercial Land Use, Medium/Fine Textured Soil, Soil Contact S2 Risk
6.5[A]	Concentration exceeds the indicated standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.50	Laboratory reporting limit was greater than the applicable standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
n/a	Not applicable.
-	Parameter not analyzed / not available.
**	Criterion applies to F4 but when the chromatogram fails to return to baseline at C50, the F4G analysis must be completed and the greater concentration of F4 or F4G is compared to the criterion.
a,b,c	SQG based on an incremental lifetime cancer risk (ILCR) of 1 in 100,000 (10e-5). B[a]P TPE = Benzo[a]pyrene Total Potency Equivalents, which is the sum of estimated cancer potency relative to B[a]P for all potentially carcinogenic unsubstituted PAHs. The B[a]P TPE for a soil sample is calculated by multiplying the concentration of each PAH in the sample by its B[a]P Potency Equivalence Factor (PEF), given below, and summing the products: Benz[a]anthracene = 0.1, Benzo[a]pyrene = 1, Benzo[b+j+k]fluoranthene = 0.1, Benzo[g,h,i]perylene = 0.01, Chrysene = 0.01, Dibenz[a,h]anthracene =1, Indeno[1,2,3-cd]pyrene = 0.1.
e	This value is the Soil Quality Guideline for the Protection of Freshwater Life. Users may wish to consider the application, on a site-specific basis, of this value where potential impacts to nearby surface waters are a concern (the value may be less than the common limit of detection in some jurisdictions; and the 1991 Interim Soil Quality Criteria for phenanthrene).
s1	Standard is applicable to total xylenes, and m & p-xylenes and o-xylenes should be summed for comparison.
s2	The criterion is for methylnaphthalenes, therefore the sum of 1-methylnaphthalene and 2-methylnaphthalene must be calculated for comparison.
s7	Standard is applicable to PHC in the F1 range minus BTEX.
CD	Detection limits raised due to dilution to bring analyte within the calibrated range.
JP	Detection limits raised due to dilution as a result of sample matrix interference.
XY	Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.
RPD	Relative Percent Difference.
61%	RPD exceeds data quality objective of 60%.
nc	RPD is not calculated if one or more values is non detect or if one or more values is less than five times the reportable detection limit.